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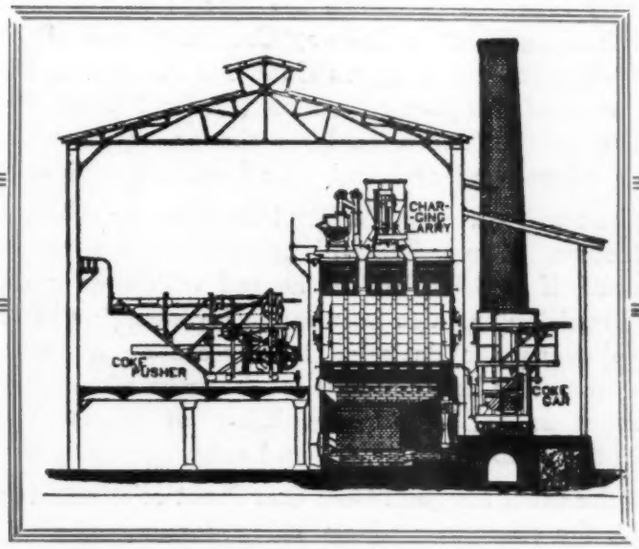

Booth 71

You're the One That Counts

Here in the Improved Equipment Company we are directly interested in the results you get—for we plan carefully, build exceedingly well and endeavor to work on schedule time. Then, we are sure that in your next need for new equipment we are a part of your organization.

Our facilities are such that we can take orders for 'most everything needed about a gas plant, but we specialize in designing, building, and erecting unusually well—Horizontal Gas Ovens, Doherty Economizer Benches, Blue Water Gas Plants, Doherty Oil Sprays, Complete Coal Gas Plants, and Doherty Washer Coolers.

We also take orders for, and furnish all kinds of Refractories Material and Retort House Tools. Whatever your needs, make this your motto,—"Let Improved Equipment take care of it."

Our representatives are at your service in Booth 71.

PRODUCTS

Doherty Economizer Benches

Horizontal Gas Ovens

Blue Water Gas Plants

Doherty Washer Coolers

Complete Coal Gas Plants

The Improved Equipment Co., 24 State St., New York

Koppers Coal Gas Plant at WINNIPEG

We are pleased to announce the receipt of a contract from the Winnipeg Electric Railway Company covering the design and erection of a Koppers Coal Gas Plant to consist of 17 gas ovens of Koppers Improved (Becker) Type, having a capacity of 6.8 tons of coal per charge, together with a Koppers producer and coal and coke handling equipment.

This plant will embody the latest developments in coal gas manufacture. The ovens will be underfired with producer gas, but, if desired, can be heated with blue gas or oven gas. Provision has also been made for steaming of the ovens. The ovens are designed to operate on a normal coking time of twelve hours, which can be reduced to eleven hours or increased as desired, permitting of the greatest flexibility in the production of gas and coke.

This is the third Koppers Coal Gas Plant contracted for during 1923, the other two plants being located at Battle Creek, Michigan, and Zilwaukee, Michigan, respectively, and is a further indication of the increased confidence of the gas industry in the Koppers Company's ability to serve it.

Proof that this confidence is warranted will be found in the operation of these plants, which, we believe, will mark an epoch in efficient coal gas manufacture.

The KOPPERS COMPANY

Pittsburgh Chicago

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American
GAS JOURNAL

Vol. II No. 16 NEW YORK—OCTOBER 16, 1923—ATLANTIC CITY, N. J. Whole Number 3428

Fifth Annual Gas Convention In Full Blast

Exhibits Are Marked By Many Novelties and Beauty of Their Get-Up—Fine Programs Planned. Entertainment Features

The hotels are full of them, the Boardwalk spotted with them and the Steel Pier alive with them—the happiest, livest, jolliest crowd of "go-getters" in the world—the rank and file of the American Gas Association.

By twos and fours and tens they've slowly, but steadily drifted in. Now they've taken possession of Atlantic City and the Fifth Annual Convention is in full swing.

On Saturday morning the Steel Pier was a bleak and empty expanse. Today it is a thing of beauty. The exhibits are a credit to the manufacturers who have built them and a source of pride to the Association.

Money has been spent without stint in making the exhibits attractive and the manufacturers have vied with each other in putting their best foot forward. Whereas, heretofore, the makers of appliances and equipment have been satisfied to simply display their products, this year they have dressed their exhibits in luxury and splendor. Soft, rich Oriental rugs cover the floors, furniture of reed and wicker, comfortable and deep cushioned, make lounging a pleasure, draperies of silk and satin, in many hues, hang from the walls and ferns and flowers in profusion make the Pier a fairy land of beauty. The lighting effects in some of the booths would do credit to a Belasco and Urban could well be proud of some of the decorations.

Many Novelties in the Exhibits

Novelty seems to be the keynote and the exhibits plainly show that much thought and planning has been expended in their preparation.

The appliances themselves are beautiful. The enamels the whitest and the nickel and copper polished to a brightness so that one can see themselves in them. Each heater and stove is the pride of some manufacturer's heart and he has dressed "this loved one" in raiment worthy of her position and station.

Due to the fact that the exhibits are more numerous and elaborate than heretofore, it was necessary to roof over the open spaces on the pier to take care of them. This year the gas man and the visitor are entertained with one unbroken stretch of booths, one more beautiful and artistic than the other. They are beautiful to the eye, but at the same time they carry their message of "If it can be done—it can be done with gas." It is doubtful if any other industry in the United States could equal the display of wonderful, perfect, time and labor saving appliances now being shown by the manufacturers on the Steel Pier.

If "the way to a man's heart is through his stomach" then the women of this country

are due the appliance manufacturers a vote of thanks for helping them reach his heart with the smallest amount of effort and trouble.

Social Features in the Program

The program of the Convention has been formulated with a due regard to the social side as well as the serious. As "all work and no play makes Jack a dull boy" the Entertainment Committee has seen to it that Jack will not have a chance to become dull this week. Dances, dinners, a frolic on Steeplechase Pier, golf and other affairs will furnish that amusement and relaxation so necessary at a meeting of this kind.

The enthusiasm of the members of the American Gas Association is more evident this year, than ever before. The building boom, now general throughout all sections of the country has been responsible for a flood of orders, and most of the manufacturers are sold up many, many months ahead. When a man has on his books all the orders he can fill and his bank account is fat to the point of bursting, he is in a frame of mind to enjoy a convention. The members of the American Gas Association look successful and prosperous this year. They've never complained or showed any inclination to cry about conditions when they were bad, but in this good year of 1923 they have come into their own and all of them are wearing the broad smile of happiness.

The problems worked out and the plans laid at this convention will be the foundation for another year's work and it is a foregone conclusion that each meeting will be well attended and each paper and talk listened to with rapt attention.

The Manufacturers' Section started the program with its meeting on Monday afternoon. The meetings were held in the Auditorium, second floor front of the Steel Pier.

First General Meetings on Tuesday

The first General Session of the Convention will be held Tuesday morning, ten o'clock in the Convention Hall, at the end of the Steel Pier. At that time President Brown will deliver the opening address. From that moment on, not a minute will be wasted.

Much work has been planned, not only in the General Session, but in the others as well. Almost every hour of the day will find a meeting of some kind devoted to the ways and means of making the road of the gas man easier.

If any member of the American Gas Association goes home without having profited from his attendance at the many meetings and his inspection of the exhibits of the manufacturers, then, he will have only himself to blame. The officers, directors, headquarters staff and committee chairman done all that any body of men could possibly do to make this Convention a success both from a social and a business standpoint. It's all here for you—go get it.

Manufacturers Favor Chicago As Next Convention City

Well Attended Meeting Yesterday Listened to Interesting Papers

While the gathering gasmen were viewing the record exhibition of appliances in the Auditorium yesterday afternoon, on the floor above the Manufacturers' Section of the A. G. A. held its meeting, with a good attendance and clear evidence of the progressive spirit which had already proved itself in the products shown below.

The chairman of the Section, F. A. Lemke, of the Humphrey Co., Kalamazoo, Mich., called the meeting to order and at once yielded the chair to the vice-chairman, George W. Parker, St. Louis, Mo., while he read his address, which appears elsewhere in this issue and which noted the various lines of progress achieved during the past year, concluding with the urgent recommendation that, wherever gas and electricity may seem to be conflicting interests, it should be made clear that they are substantially non-competitive, for gas does not compete for power uses, and, on the other hand, "If it's done with heat, you can do it better with gas."

Following this, the report of the Standardization of Gas Appliance Specifications Committee was read by its chairman, W. T. Rasch, of the Consolidated Gas Co., of New York, as follows:

"During the year the Committee prepared specifications on gas-fired steam radiators and water heater cocks, and revised the existing gas range specifications. These specifications, with the exception of the gas range specifications, are to be tentative for a period of one year. This gives the members of the Manufacturers' Section ample time to suggest changes in the specifications. The gas range specifications, which have been revised, have had added to them a performance specification as Exhibit C.

PRESIDENT BROWN CONGRATULATES MANUFACTURERS

Hardly had the secretary finished reading various announcements, several of which helped to remind the delegates that the Entertainment Committee had much in store for them, when Chairman Lemke recognized President Brown in the rear of the hall and called on him for some remarks. President Brown responded: "I just want to say a word of appreciation of the absolutely unprecedented show you are putting on downstairs. It is better than ever before, and I want to express to you the hearty gratitude of the Association."

Then the assembled manufacturers for awhile both heard and saw, while C. A. Plaskett, of the Forest Products Laboratory at Madison, Wis., told them of the work of the Laboratory in devising stronger shipping cases for all kinds of manufactured products, and then showed "movies" of the tests made at the Laboratory. The railroads had done much, he said, to educate their employees in the proper handling of cars and freight, and the manufacturers and shippers should take advantage of all that had been done to provide the means whereby goods might be safely and economically shipped.

The Way They Get That Happy Smile on Doc Campbell's Face. Posed for the Radiant Heat Corporation

NEW OFFICERS CHOSEN

The report of the Nominating Committee followed, read by its chairman, John S. DeHart, Jr., of the Isbell-Porter Co., Newark, N. J., and as a result the following were unanimously and enthusiastically elected for 1923-24: Chairman, George W. Parker, Russell Engineering Co., St. Louis, Mo., promoted from the vice-chairmanship, and as vice-chairman, Eugene E. Basquin, Surface Combustion Co., New York, N. Y., both of whom expressed their appreciation in well chosen words.

CHICAGO THE NEXT CONVENTION CITY?

When the Section got down to New Business, two matters took up most of the time. J. D. Taylor, of Baltimore, Md., the Section's representative on the Time and Place Committee of the Association, said that he would like to know the sentiment of the Section as to the place of the next convention and the arrangements for the exhibit. Chicago was much discussed, and the desire seemed general to have a large exhibit—of course—the largest ever—at the Coliseum, if proper arrangements could be made. Mr. DeHart then brought up a matter which the Executive Board had been asked to approve, relating to the fixing of retail prices by the manufacturers, with a base discount to be additional to the trade discount. Several members of the Section expressed a doubt whether any agreement could be reached as to what the percentage of profit should be on which the base discount should be fixed.

U. G. I. Holds Annual Dinner and Meeting

A Tribute to Rollin Norris

The United Gas Improvement Co. held its annual dinner last night in the Rose Room of the Traymore, Atlantic City. The guest of honor at this banquet was Rollin Norris, who is known to the gas men throughout the country. Mr. Norris retired from active duty on October 1, 1923, and a testimonial in the form of a handsomely bound set of the classics was presented to him at the dinner, as a small token of the esteem in which he is held by the company and his associates whom he leaves after thirty-six years of service.

Among the gentlemen present at the banquet may be mentioned Samuel T. Bodine, president of the U. G. I. Co., vice-presidents H. Lewis Lillie, P. H. Gadsen, G. W. Curran, James T. Hutchings, F. J. Rutledge, J. A. Pearson, Walton Clark. Consulting engineer and the managers and superintendents of various plants throughout the country.

ANNUAL MEETING HELD IN THE AFTERNOON

In the afternoon the annual meeting of the agents and managers from the different plants of the company was held at the Traymore. A very full program was presented at that meeting, which was well attended. The meeting was presided over by James T. Hutchings.

Jake Jones' Two Obsessions

"Be Yourself" and "Go After It"

By Syd

Who doesn't know Jacob B. Jones, of The Bridgeton Gas Light Company, Bridgeton, N. J.? Everybody knows—and **likes him. Why?** Because he can sell **more gas and** make more friends than **any man in** the business. He has **a little trick of his** own, a very simple **trick, he simply acts** "natural."

Jake learned this Acting Natural stuff pretty early in life as a kid selling newspapers and later as a reporter. While **he was in the newspaper** game he took **a fling at Politics** and they say down in **Bridgeton that** he certainly did act **natural, for at** one time he was drawing five regular salaries. The Gas Company was paying him one, two newspapers each contributed, he found time to be City Clerk and run the Marriage License Bureau—and was also Treasurer of the Amusement Park.

It was about this time that he needed a stenographer who was willing to work all kinds of hours—so he married one. Probably you have noticed the little girl with the red hair who accompanies him on the Boardwalk. She is Sarah, no longer stenographer, she's too busy being "Mrs. Jones."

JAKE AND SARAH

Mrs. Jones comes first with Jake, but the gas business runs her a close second. He has already won her, but he says that the field is still open for "Gas Lighting."

"Personally, I feel," said Jake, that there is no more overworked word in the English language, than the word "Service." You have all met the individual in a restaurant who calls for the head waiter and demands to know why "He cannot get a little service?" That is usually what he gets—a little.

Try "jiggling" the telephone hook impatiently and see if you can get your party. When the girl does answer, it is ten to one the line is busy.

Service is a two-sided affair, it means giving and receiving, there is an obligation on both sides. The very great majority of persons appreciate Service, it is only a very small minority who demand something in the name of Service that is selfish and unreasonable.

Each department of a gas company has its own idea of the meaning of service. The Production Department's idea of Service is to make gas of uniform quality and to keep the holders up to a point where they can handle any demand load, no matter how heavy.

The Distribution Department rightly contends that their part is very important, distribution, without interruption to all the individual users.

The Service Department comes along with the claim, that, after the gas has reached the consumer's premises, it is their job to see that the appliances are in proper working order to insure its most efficient application for the amount of gas consumed.

The Office Department claims that theirs is a most important ine, as they have to collect the bills and receive the service calls. Actually, every department is important in itself and only by working in harmony, one with the other, can we hope to obtain that high standard of Service which is the aim of every gas company.

The Journal Will Pay $10.00 Reward for the Name of the Man Who Was Seen Walking in the Atlantic Ocean Early Tuesday Morning

Thurday The Big Night

Gas Men Will Return Again to the Days of Childhood

Every gas man, his wife, or sweetheart, is looking forward to Thursday evening, officially known as Festival Night on the Steeplechase Pier. Activities will start at 8.30 P. M. and every minute lost will be one to be regretted.

The delegates from the Middle West and the South will find Steeplechase a wonderland. The attractions are novel and are of the type to be found only along the Atlantic Coast. The gas men themselves will operate all the fun-making shows and will do the ballyhooing themselves. The Entertainment Committee have selected the men with big voices and bigger vocabularies to expound upon the merits and the fun-making qualities of each attraction.

There will be music by an excellent orchestra and those who do not care to take in the side shows can spend the evening worshipping at the throne of Terpsichore.

The refreshments will be of the peanut and pink lemonade family and the guests will be transported back again to those dear old days of childhood.

Informal dress will be in order. In fact, a dress suit or a Tuxedo will be rather out of place, especially if you value the suit.

Tickets for the evening can be secured at Headquarters. Step up, ladies and gentlemen, the line forms to the right.

Accounting Section Has Interesting Exhibit On Steel Pier

The demonstration at the booths will include a working exhibit of a machine for stamping amounts on gas bills that has been worked out by one of our progressive companies; a new style of gas billing machine that performs in one operation the work formerly requiring three to four different operations; a demonstration of the use of machines in the Merchandise Accounting System of one of our progressive companies; and a full demonstration of the so-called system of "Bookkeeping Without Books."

Actual gas company operators from The Peoples Gas Light & Coke Company, Rochester Gas and Electric Corporation and Baltimore Consolidated Gas Electric Light and Power Company, will be present in the booths to show you how these machines are operated in the regular routine of their company work. This is a splendid opportunity to familiarize yourself with the value of such office labor saving equipment **from the standpoint of the gas company operator**, and to determine its application to your own work based on the experience of your fellow gas men.

We wish to introduce and bring to the particular attention of all members of the A. G. A. Accounting Section, the Chairman of the Accounting Exhibition Committee, Mr. Paul D. Warren, whose genial features are shown herewith.

Mr. Warren has had under his personal supervision the preparation of all features of the Accounting Section Exhibit which will be shown in Booths Nos. 189 to 200, Steel Pier.

The first thing that all attending members of the Accounting Section should do on arriving at Atlantic City is to go to the Steel Pier and register **promptly.** After you register go to Booth No. 189 and see the exhibit which Mr. Warren has prepared for you. This is not only the most complete and most practical working exhibit ever prepared for accountants and commercial office men, but these booths have been fitted up as a headquarters for members of the Accounting Section during the Convention. You will meet the men who are doing the things, and interested in the things that you are at the Accounting Section exhibit.

There will also be available at the Accounting Section Exhibition the most complete collection ever presented of forms used by gas companies in their contacts with their customers. Many of these are unique and include features designed to clarify the contractual and service relations that are established with the new customer.

The system of "Bookkeeping Without Books" is becoming better known and appreciated each year by our company members, many of whom have adopted it with resulting economy of time and money. You cannot afford to leave the Convention without looking into the demonstration of this system.

The Exhibit will be open from 9 A. M. to 6 P. M. daily and also on Tuesday evening,

WILLIAM A. DOERING, of Boston Consolidated Gas Co., is an Expert Story Teller as Well as an Accountant.

and visitors will find at all times attendants that are competent to explain the different exhibits.

In addition to the exhibit a loungine space will be provided where everyone is invited to meet his friends and discuss the exhibits in comfort. This is particularly for your convenience—it is where you will find the greatest number of the Section's members assembled—and where you can obtain the fullest information as to the Accounting Section sessions and the reports to be submitted thereat.

So don't forget to meet Mr. Warren immediately after you register and to utilize fully throughout the Convention the facilities provided for you at the Accounting Section exhibit.

Accounting Section Exhibit

Steel Pier—Booths 189-200

Demonstration Daily, 9 A. M. to 6 P. M.

of

MACHINE BILLING BOOKKEEPING WITHOUT BOOKS
MERCHANDISE ACCOUNTING

Ample lounge space will be provided for visitors

Make your appointments and meet your friends at
ACCOUNTING SECTION HEADQUARTERS
Booths 189-200

Accounting Section Sessions will start promptly at 2 P. M. Tuesday, Wednesday and Thursday at

VERNON ROOM—HADDON HALL

A Statement to the Gas Industry

By

DANA D. BARNUM
President, Boston Consolidated Gas Company and
Past President of the American Gas Association

The manufactured gas industry is to be congratulated on this, the fifth year of active life of its national organization, the American Gas Association. The things we have been dreaming about during the past five years are taking definite shape and my prediction is that the gas industry is on the eve of the greatest expansion in its history.

To gain a proper perspective of the industry's growth in recent years, consider the following:

The progress made in carbonization; the adaption of generating apparatus for peak loads and consequent disappearance of the bug-a-bear of taking care of a house heating load; the development of liquid purification and the resultant decrease in capital charges; the knowledge we have gained in the use of various fuels not previously considered practical; the changes that have come in the standards for gas (witness Colorado's new rules); the new schedule for charging for gas which allows us to go after business which we formerly could not touch; the continued improvement in the quantity of domestic appliances as well as apparatus for heating houses; the development in industrial appliances which opens up a promising field; the simplification of gas accounting; improved and modern sales methods, etc.

The study of the industry's problems today will enable one to see clearly the advances that have been made and the unlimited field which we are entering.

Who will say today, as was said two years ago, that the gas engineer is failing to take advantage of his opportunities?

Co-operative Advertising Emphasized By Chairman Lemke of Manufacturers' Section

The following report was delivered at the Monday meeting of the Manufacturers' Section of the American Gas Association, assembled in convention at Atlantic City.

The customary address of your chairman is, as usual, a brief review of the past year.

The year now ended has been one of excellent progress for this Manufacturers' Section. We now have a membership of 270, as compared with 246 last year. There still are many eligible prospects yet to be interested in becoming members of this Section.

No meetings of this Section have been held during the year. There has seemed to be nothing for discussion at any time during the year of sufficient importance to justify the very large expense of time and money that getting the Section together as a body would represent.

Committee meetings with the aid of the work of the very active headquarters staff, have adequately handled all matters needing attention from time to time. In that connection, I wish to express my appreciation of the careful attention given the affairs of this Manufacturers' Section by our Secretary, Mr. C. W. Berghorn.

FORMATION OF INDUSTRIAL GAS SECTION

During the present year, an Industrial Gas Section of the American Gas Association has been formed, that promises to be a strong active Section. At the present time it has in the course of preparation, six booklets bearing the following titles:

Hotel and Restaurant Uses
Large Volume Water Heating
Wholesale Baking
Steam Boilers
House Heating
Combustion

At this particular meeting, we have the greatest exhibition ever held in connection with the Gas Industry; it covers 27,500 square feet of display space, as compared with 19,000 square feet last year. There are 160 exhibits, as compared with 135 last year, which clearly shows a splendidly increased interest in both the Association and the Industry, and an optimistic outlook on business prospects.

This present Annual Meeting and Exhibition has been extensively advertised by member manufacturers. Further than that, this convention and show has been well advertised by many trade journals and by mail to Plumbers, Architects, Heating Engineers, Hardware and Furniture Dealers, in all the country east of the Mississippi River. It is hoped that many members of these more or less allied trades will accept the invitation to come to inspect the greatest display of gas appliances ever held up to this time.

CO-OPERATION WITH OTHER SECTIONS

It has been the policy of the other Sections of the American Gas Associ-

F. M. LEMKE

ation to ask from and to give to this Section, co-operation of general advantage. Your Section has been represented on several committees of other Sections. One such committee of some importance is the Plumbers' Co-Operation Committee of the Commercial Section. That Committee has as its chairman, Mr. Frank H. Knapp, of this Section. In the month of June, Mr. Knapp, representing the Association, addressed the Annual Convention of the Great National Master Plumbers' Association which also met at Atlantic City.

The Gas Sales Stimulation Bulletins, issued by the Commercial Section this year, have been wonderfully good; but I wonder if they have fully received the deserved support of all appliance members of this Section. They should have such support that encouragement for their continuance may exist.

The Association Monthly is another opportunity that does not seem to be as usefully regarded by membership of our Section as it might be. Supply news and items of interest for use in it. Reading it is not enough. The suggestion is made, that the chairman of each of the ten Divisions of this Section, furnish one paper during the year for use in the Association Monthly. Observing this suggestion would mean that each of the various interests represented by this Section would have the benefit during the year of at least one good strong article in the Association Monthly.

From time to time the suggestion has been made that there should be a large amount of co-operative advertising of gas and gas appliances in national magazines to further educate and convert the public.

CO-OPERATIVE ADVERTISING

This subject is one of such possibilities as to deserve serious consideration. Perhaps it would be difficult right now to raise a sufficient amount of money to do such advertising in a worthwhile way, possibly though, a plan could be evolved for presentation to the Executive Committee of the American Gas Association that would be so attractive in its possibilities as to bring approval. In time, no doubt, adequate provision for such work will exist, through the setting aside by each gas company of some fraction of a cent for each thousand cubic feet of gas sold.

Your chairman has but one recommendation to make; it is of some importance to the Association, and especially so to the members of this Manufacturers' Section.

GAS PROPERTIES UNDER ELECTRIC CONTROL

An increasing number of gas properties are in the control of organizations that are mainly electric in their general business interest. We find as a result an increasing number of gas properties in charge of men, who by education, experience, and tradition are electric men before they are gas men; accordingly, they are inclined to minimize the importance and usefulness of gas and to promote gas and gas appliances only in a comparatively modest way.

The recommendation offered is, therefore, that the American Gas Association, this Section of the Association, and each member of this Section, make every reasonable possible effort to post such men that gas and electricity are substantially non-competitive; that, for power purposes gas does not compete with electricity; that where gas is available, "If it is done with Heat, you can do it Better with Gas," and therefore, gas and gas appliances should have the same active, effective, constant, persistent promotion as is given to electricity and electric appliances.

Creating "Better, Happier Homes" With the Help of Gas

Miss Ada Bessie Swann, of the Public Service Gas Co., of N. J., Tells How It Is Done

The Public Service Gas Company of New Jersey organized its Home Economics' Department in July, 1919.

Mr. James P. Hanlan, of Public Service Gas Company, long before 1919 had the vision of value that such a department would be in promoting greater interest in better home conditions through the proper knowledge and correct use of gas labor-saving appliances and the intelligent use of gas.

During the four years the department has been operating, proof of its value has increased daily, until now the department is an important factor in the Company.

The department is under the supervision of Ada Bessie Swann, a graduate of the Boston School of Domestic Science and the Boston Cooking School, with a wide experience in household problems.

The department is located in the General Office at Newark, but carries on its work throughout the state, to be exact, in twenty-four different gas offices. Miss Swann has an assistant, also a Domestic Science graduate and a secretary to complete the staff of the department.

MISS ADA BESSIE SWANN

"BETTER, HAPPIER HOMES," AIM OF DEPARTMENT

The aim of her department is to assist in the creation of "Better, Happier Homes," which comes as Miss Swann says, only when the family is well nourished with properly cooked foods, attractively served. And when the mother of the home, because she is freed by the use of modern gas appliances from the former hot, tiring drudgery of the kitchen, is able to enjoy the companionship of her own family and her friends. And life itself is one joy of doing things for others, but still having time to keep herself fit and keep up to times with the outside interests that surround her.

Now, how does this affect the gas business? Logically, it creates a greater demand for the best and most modern appliances, gas ranges with regulators and without, gas water heaters, fireplace heaters, proper lighting fixtures, laundry appliances and others.

HOW WORK IS ORGANIZED

How do we carry on our work, you ask?

First, we make it a woman's department for women, the greatest percent of gas merchandise buyers being women. Then, we talk to them about their home problems.

How, you ask?

First, through our inquiry department, where customers of Public Service Gas Company can write, phone or come in and talk over their problems. Just now it is canning time and the department is kept busy answering questions on canning, pickling, jelly making, etc. The department also mails to consumers tested recipes and other information, using, when able, manufacturing companies' literature, and literature supplied by the American Gas Association.

Second, we service all gas ranges with regulators and all complaints of "not being able to bake" in the home are remedied to the entire satisfaction of the user of gas. This does more to win satisfied customers for the company than perhaps any other activity of the department.

Third, we carry on in our various offices, in co-operation with gas range manufacturers, cooking demonstrations. These demonstrations are usually for a two-week period and at the present time we have five different range demonstrations going on in our territories.

Fourth, we do public lecture and demonstration work before women's clubs and other organizations, such as ladies' aid societies, civic organizations, etc., throughout New Jersey. We also conduct practical demonstrations before the domestic science classes of the public schools of New Jersey.

Fifth, Better Homes exhibits are organized and carried on by this department, the installation of the proper hot water system, model laundries and kitchens forming an important display in all Better Homes exhibits, resulting in sales of many gas appliances and spreading the propaganda of "It it's done with heat, you can do it better with gas."

These are some of the activities of the Home Economics Department in its relation to the public.

Within our own organization we extend helpful knowledge on all appliances to our sales folks, and holding get-together meetings at which appliances are demonstrated and sales methods discussed.

A well-fed family is a happy family. "Better cooking with gas" helps to make happy homes, and brings to the gas companies valuable aid in securing, not only more business, but tha tsomething without which no company can exist, the good will of its customers.

H. M. BRUNDAGE
Sits on the Money Bags

Today's Happenings

Time	*Place*	*Event*
9.30 A. M.	Staff Headquarters	Staff Meeting
10.00 A. M.	Convention Hall	First General Session
		Executive Session
2.00 P. M.	Vernon Room, Haddon Hall	Accounting Section
	Auditorium	Commercial and Industrial Gas Section
	Convention Hall	Technical Section
	Room 17, 1st Floor, Chalfonte Hotel	Publicity and Advertising Section
6.00 P. M.	Traymore—Club Room	Pennsylvania Gas Association
8.00 P. M.	Exhibition	Open to Public
8.30 P. M.	Convention Hall	Informal Dance

Roscoe Nettles Fishes For Fish and Gas Business

A LIVE ONE FROM THE SOUTH

Roscoe Nettles, Manager of the Tampa (Florida) Gas Company, is one of the "live ones" from the South attending the convention. The picture shows Mr. Nettles in one of the few moments of his life which are not devoted exclusively to gas—displaying an afternoon's "catch" in one of the semi-tropical Florida lakes.

Speaking of the value of the Association to the gas business, Mr. Nettles said:

"All my life has been devoted to the gas business and naturally it is closer to my heart than anything else. I am able to testify to the great service of the American Gas Association, which is responsible for the wonderful development of gas interests within the past few years. The Association is constantly selling the gas business to gas employees—and when they are sold, it is easy to sell our product to the public, whether merchandise, gas or stock.

"I cannot see how a company outside the Association can render that one hundred per cent service which it should feel obligated to give to its community.

"Every gas company in the country should be an active member of the Association and should give it the fullest support—for the more successful the Association, the more useful it must be to the industry as a whole. I feel to feel that the American Gas Association is the Big Brother of every ga sman in the country."

This Is the Fish That Got Away

Behind The Scenes

An Incident in Program Making

The growth of the American Gas Industry and its innumerable activities, from raw meterial, right through manufacture, distribution, utilization, to rate making and accounting, has been stupendous, and as a natural consequence is directly reflected in the work of the association.

In presenting this year one of the finest programmes to the largest gathering of the gas fraternity, the allocation of time allowable to the various sections has been a serious and weighty problem for the Headquarters Staff.

The work of each section represents concrete and valuable material for the executive and operator; it is of peculiar value in that it is based on the study and experience of capable gas men throughout the country and of standing in the industry.

In its entirety and in the interests of a well rounded out programme embracing the gas industry at large the activities of each section are closely interrelated and of equal importance.

It is therefore no small task to successfully plan and later carry out a big program in limited time. Sometimes this has its humorous side. We were privileged the other day—in our meandering through the offices of the Association to see "Hugh" Hartman, the energetic and versatile Secretary of the Accounting and Technical Sections, at his desk with slide rule, split second watch, calendar, pencil, paper, computing machine and other paraphernalia dear to the heart of the schedule and time table maker.

His task was to prepare a time log, to so divide and allocate the time allowed his section for presentation of their material as to allow the maximum time for discussion of the important items.

The answer to one of his problems, after using algebra, "trig" and logs, was 20 minutes assigned to F. H. Patterson, Ass't Auditor of the Rochester G. & E. Company and chairman of the Budget Committee. Mr. Patterson's acknowledgement was so apt that we have no hesitancy in giving it below, although we didn't know if he said, "them my sentiments."

The Hero

By BERTON BRALEY

(From the *Saturday Evening Post*)

They gave him twenty minutes, but he finished up in ten;
Oh, there's a prince of speakers and a servant unto men!
His diction wasn't such a much, he hemmed and hawed a bit,
But still he spoke a lot of sense, and after that—he quit.

At first we sat plumb paralyzed, then cheered and cheered again;
They gave him twenty minutes, and he finished up in ten.

In all post-prandial history no finer deed is known,
Among the dinner orators his figure stands alone!
A gratitude unlimited from all of us he's won,
We'll vote for him for president, if he should care to run,
He pulled a stunt that hitherto was quite beyond our ken;
They gave him twenty minutes, and he finished up in ten.

A deed without a precedent—we can't express our thanks,
But should he turn to piracy, or busting open banks,
We'll trea tthese things as trivial and let him go his way;
And, when he's dead, a monument we'll rear above his clay.
And this shall be the epitaph we'll carve in marble then,
"They gave him TWENTY minutes, but he finished up in TEN."

"JOE" TAYLOR Carried TWO Suitcases. Wonder What Was in the Other One?

Accounting Men Attention!

Chairman Heins wishes to again advise all members of the Accounting Section that the sessions of the Section will start promptly at 2.00 P. M. in the Vernon Room, Haddon Hall. The Report of the Committee on Relations with Customers will be presented at the Tuesday Session and all members should make a special effort to be present early and hear all of this report.

"Get Your Share"

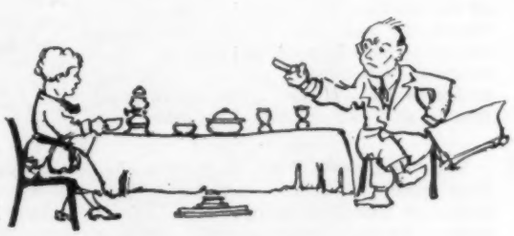
By SYD

What's the use of a Convention
Unless you lighten up the tension
And let yourself be real for just a week?
Forget your cares and worries,
And all those little flurries.
There's lots of joy for those who really seek.

If your firm's had bad collections
Don't take time for sad reflections,
Get out among the boys and have some fun.
Pick out the jazzy places,
Full of happy, smiling faces,
And buy yourself a neat and nifty bun.

Get your share of joy and laughter,
Sure, there'll be a morning after,
But though it comes, t'will also pass away.
Don't waste today in sorrow,
You may be dead tomorrow,
And gloomy thoughts have ne'er been known to pay.

If you know a funny story,
Pass it on 'till it gets hoary,
For laughter is the wine of daily life.
If you have to tell of troubles,
And about those bursted bubbles,
Why save them up—and tell them to your wife.



Provide For The Future--The Present Usually Takes Care of Itself

H. D. Witcomb, Vice-President and General Manager of the Public Service Gas Company, of Newark, N. J., is a man of broad vision. While most of us are attending to every day detail, he is planning for the years that are to come.

"I believe," said Mr. Witcomb, "that every Gas Company in the United States should acquire sufficient property for manufacturing purposes for future years. Land should be bought before streets are laid or other improvements started. In this way much money will be saved in the purchase price and the plants themselves can be planned more intelligently.

"We should also think of gas distribution, planning systems of ample size trunk mains so that gas can be sent into suburban territory.

"These things, heretofore, have been somewhat neglected. They are very vital to the growth of the individual company and the industry as a whole. We must have sufficient land on which to build additions to our plants and it is certainly necessary to have mains of ample size to get this gas away from the manufacturing plants without too much expense. Due to the fact that the streets, especially in large cities, are being covered with conduits of the electric, telephone, water and sewer mains, it would be wise for the gas companies to occupy a portion of them while there is yet a chance to get large mains in."

F. W. STEERE, of Detroit, Giving the Boardwalk "the Once Over"

EDWARD H. BAUER

The Convention--A Tonic

All Of Us Need It

"There is no better medicine for the gas man or manufacturer making or dealing with gas making and gas utilizing appliances than a good visit to the American Gas Association Convention," said Edward H. Bauer, of the Worcester Gas Light Company, Worcester, Mass.

"We meet old friends—make new ones—see new appliances—learn of new and more efficient methods and hear just how the other fellow does his work and can compare this with our own.

"On the whole the gas man, paying a visit to the American Gas Association Convention, cannot help but come away a better gas man than he was before. The men responsible for this successful convention are to be thanked and congratulated—more power to them."

Since the world series is now over, the gas men can give their undivided attention to the business of the convention. Many are happy, the Yanks won—excepting those, of course, who had money bet on the Giants.

Exhibition Spotlights

The "Grand-daddy of Them All," so the sign reads on the veteran Instantaneous Automatic Water Heater, mounted on a pedestal in the booth of the Pittsburgh Water Heater Company.

This cumbersome, weighty mass of metal, built twenty-eight years ago, when compared with the modern, expresses fully the strides made in this class of gas appliance types shown.

The West Gas Improvement Co. of America have a simple but effective method of showing the workings of their Glover-West Continuous Vertical Retort. On a dead black background is an illuminated cross section in colors, illustrating the process.

A gigantic thermometer in the booth of the Surface Combustion Company informs the gas man of the work done wherever heat is used in industry. The range includes temperatures for curing meats as low as 100 degrees to ceramic testing at 3430 degrees Fahrenheit.

The "Radiantfire" Art Gallery is eliciting much favorable comment. Displayed in true Metropolitan Art Gallery style — neutral background, shadow boxes, masked lighting and all—are ten original oil paintings in gilded frames; from which reproductions were made to illustrate a series of advertisements in the Saturday Evening Post. This exhibition lends attractiveness to the booth of the General Gas Light Company.

One of the first things that strikes the eyes of the visitor as he enters the main exhibition hall is a life-like, ferocious lion. Head in air, powerful jaws opening and closing, tail lashing to and fro, he stands perched high above the booth of the Pittsburgh Water Meter Co. The effect of ferocity is heightened by the beam of a spotlight, focussed directly on the lithe form of the Jungle King. This attraction is used to symbolize the "Lion" Water Heaters, manufactured by this company.

A unique utilization of the actual product is shown in the display made by the Strause Gas Iron Co., where the name "IWANTU" appears in flaming gas letters—the gas being burnt in their own gas lighters—against a black background. This lettering is visible from many points and is the only one of its kind noted.

The smallest meter in the world is to be seen at the booth of the Lambert Meter Co. It is a cylindrical affair, attached to a gas jet, and it indicates accurately the number of cubic feet of gas per hour being burnt. These meters can be made in any size, even up to such huge instruments capable of registering the flow of 300,000 cubic feet of gas per hour.

Home Service Department a Feature of the Peoples

The Radio Used As a Publicity Agent

Paul D. Warren, of the Peoples' Gas Light & Coke Co., of Chicago, besides running the accounting and bookkeeping department of the company also finds time to supervise the activities of a new department, called the Home Service Department. There are a number of trained domestic economists in this department, young ladies who spend their time in publicity work and practical demonstrations to call attention to the advantages of the home, to urge the return to the home, to home cooking and to all the comforts that go with it. They are ever ready to answer all questions, to advise the housewife as to the best way in which to prepare various dishes, how to serve them tastily, how to make the home even more attractive than it now is.

This is important work—for the gas industry must look for a large consumption of its product in the domestic field. The use of gas for cooking not only enters into this matter, but also its use for heating water and in fact for heating the house as well. The return to the home movement is of considerable significance to the gas company for it is essentially propaganda that has a natural appeal to the people and incidentally it means a larger consumption of gas.

USE OF THE RADIO

One interesting feature about the work that is being done by the Peoples' Gas Light & Coke Co. in this direction is the use of the radio to disseminate information and to answer questions that pour into the office from listeners-in. The use of radio for this purpose may perhaps be new to the gas man, but the results are well worth the trouble of preparing talks and broadcasting them. The talks are listened to with a great deal of interest as is evidenced by the hundreds of inquiries that are mailed into the gas company office from the radio audiences. The gas company must be on the lookout to take advantage of every means and every new way in which to disseminate the information that it wants the public to receive. The radio is the newest publicity agent and has already proven its worth in the short time that its use has been prevalent.

R. H. BURDICK, Operating Gas Engineer, Electric Bond & Share Co., N. Y.

L. L. MOORE Extending the Glad Hand to All Visitors at the U. G. I. Booth

Mr. Warren had some interesting remarks to make regarding the new rates that have been promulgated by the Public Service Commission in the city of Chicago. Special rates have been granted on industrial and house-heating business. Mr. Warren stated that while these rates are really progressive and mark a distinct advance in rate structure, nevertheless they are still not all that is desirable. It is expected that the new rates will prove a potent impetus to the development of the gas business in Chicago.

Every day sees the country getting closer to house heating by gas and the price differential between solid fuel and gaseous fuel steadily diminishing, said J. J. Julien, of the American Society of Heating and Ventilating Engineers, before the American Gas Association today.

A. E. Kent Joins Roper Organization

A. E. Kent, formerly with the A-B and Peninsular Store, has joined the sales organization of the Geo. D. Roper Corporation, Rockford, Ill., as their New York representative.

Retiring Chairman F. A. Lemke, of the Manufacturers' Section, gave a banquet last night to the members of the Section. The dinner was held in the clubroom of the Traymore. The attendance was good and all had a fine time.

Winners of Gas Appliance Sales Contest To Be Announced

Four Prizes. One First and Second, In Each of Two Districts

R. B. Brown, President Milwaukee Gas Light Co., Milwaukee, Wis.

The prizes to the winners of the gas appliance sales per meter contest will be awarded today at the meeting of the Commercial Section of the American Gas Convention, assembled in convention at Atlantic City.

The Gas Appliances Sales per Meter Contest, under which plan the company members have been reporting to the Association headquarters their gas appliance sales by months for the period September, 1922, to August, 1923, inclusive, was brought to a close on September 15.

This is the first time that a comprehensive survey has been attempted to secure sales data of this character, but we believe the results have more than justified theeffort for we know now within a reasonable approximation what the total dollars valus of the appliances sold by all gas companies amounts to for the twelve months ending August 31, 1923.

IT IS APPROXIMATELY $45,000,000.00

Assuming the 75 per cent. of this business is for replacement of old equipment we still have $12,000,000.00 worth of gas consuming appliances being installed as new business, new gas revenue producers if you please. In addition consider the value to the industry in good will as well as in bigger revenue from having replaced old appliances with new equipment to the extent of another $33,000,000.00.

WIDE FLUCTUATIONS IN HEATER SALES

There is much food for thought for the sales manager in the fact that there is a very wide fluctuation in the appliance sales per meter of our member companies. Heretofore we have not had any common understanding of what a good or fair monthly sales of appliances per meter should be—possibly those companies whose sales amounted to $5.00 per meter per year thought they were doing quite well, but when we see a considerable number of companies whose appliance sales are well in excess of this figure, running as high as in many cases $10.00 per year and over, does it not give one cause for deep reflection.

SHOWING OF SOUTHERN COMPANIES SURPRISING

Another interesting fact disclosed by these reports is the showing of the southern companies which, due to their climatic conditions, were thought to have wide fluctuations in their winter and summer appliance sales. This, however, has not been the case at all.

We believe this contest has had a stimulating influence on the sales managers, in fact we know it has in one particular case at least, that of Mr. J. Y. Cheney, of The Orlando Gas Company, Orlando, Florida, who even went so far as to enlist the assistance of his consumers in a novel advertising plan to help him make a good record. The accompanying newspaper advertisement is a good evidence of how Mr. Cheney tied in his sales efforts with newspaper publicity. It so happened that the Orlando Company was in the lead for the southern group up until July 1st, but at the last moment was beaten by the two leaders named below.

WINNERS OF PRIZES

It is our pleasure to announce the two winners in the northern and southern groups as shown in table.

The prizes were awarded at the first afternoon session of the Commercial Section in the Auditorium of the Steel Pier on Tuesday afternoon, October 16.

WINNERS	*For 12 Months Period Ending Aug. 31, 1923*		
	Meters	*Total Dollar Appliance Sales*	*Average Sales Per Meter Per Month*
Northern Group			
First Prize—Lebanon Gas & Fuel Co., Lebanon, Pa.....	1216	$20,884.00	$1.43
Second Prize—Emporia Gas Co., Emporia, Kansas.....	1050	$16,207.00	$1.28
Southern Group			
First Prize—Bristol Gas & Elec. Co. Bristol, Tenn.....	939	$25,986.00	$2.30
Second Prize—Winston-Salem Gas Co. Winston-Salem, N. C...	2056	$24,674.00	$2.27

Special Contest Offer On Gas Appliances For August Only

The American Gas Association is conducting a nation-wide contest, based on the volume of sales of gas appliances per meter in service, extending over the twelve-month period ending August 31st.

(Continued on page 342)

Cookies Made By Gas On the Boardwalk

Excellent Exhibit Causes Many Mouths to Water

Quite a crowd watching the making of those cookies yesterday—not in a bunch, of course, because that would have obstructed traffic on the Boardwalk, but right along all through the demonstration. And what cookies they were! It only goes to show what a woman and a gas range can accomplish.

Which is exactly what it was all for. The public came along; it stopped, it watched, and shortly it was convinced. Here was an idea. The ladies were interested, the men were interested, the children were interested. We'll admit that the point of view wasn't the same for all of the watchers, but it amounted to the same. The women saw gas do the trick where many of them had hardly previously given it credit. The men, well, the men were somewhat more interested in the actual outcome. We guess, if the truth be owned up to, there aren't many men who don't have a secret longing for a well-baked, raisin cooky that just melts in the mouth. Why the children were interested hardly needs explaining. And there was one youngster, who climbed high on the lamp-post in front of the exhibition booth to eat with his eyes all that he wasn't going to get for his tummy.

And then when the time came to distribute the luscious morsels, make believe he didn't come down off that lamp-post in a hurry. He was the epitome of heart-felt tribute to the gas-oven and the exhibit and the American Gas Association itself, for the exhibit that they had put out in front on the Steel Pier.

To tell the truth, this is written very much against our will. We just know that the news of those cookies is going to mean that we're not going to get our share today. But then, it's for the public to see what it's all about and not for our private delectation.

The operation took a little longer than the people out in front wanted to take. As a result, not everyone who stopped to watch had a chance to taste those cookies. What we mean by a half-kick is the fact that because they didn't all wait there were more to go round.

ALL QUESTIONS ANSWERED

There were questions asked, of course, and Mrs. Rackett—that's the name of the cooky cooker—answered them just as fully as she was able, but she wouldn't tell the whole story of the cookies. Mrs. Jones wanted to know what was used for "shortening" and Mrs. Clark wanted the entire recipe, but Mrs. Rackett wasn't telling that part of the secret. Or at any rate, she wouldn't say that it had anything in particular to do with the cookies.

Well, maybe, it was the gas stove and the spotless ware, but we're skeptical. At any rate, we're going to get the lady who presides over our gas range to try again. And we're going to tell our friends what happened on one gas range in Atlantic City and maybe, the home town circle will find out that there's more to a gas range than a burner.

And that's the way, as we gathered from the conversation going on about us, a good many of the other watchers felt.

We're going to let you in on a secret. The cookies aren't the only thing that Mrs. Rackett is going to make. We're frank to say that those cookies were reason enough for any gas oven, and we don't know what the American Gas Oven is trying to prove exactly. But if there are any more things come out of that oven out in front like what came out yesterday, they're going to convert America—Atlantic City, anyhow—into a gas-oven product-eating populace. It occurs to us that that may be their idea. If it is, good luck to them. If it isn't, well, it's their risk, not ours. It's very likely to happen anyhow. And, if they don't want America or that part passing the gas-oven facing the Boardwalk, to fall in love with that goody-producing article they had better stop showing it. They could just as well use a gas-heater or gas-log or something, even a sign to prove to people that they've got the rest of the Steel Pier.

We'll tell you another secret, as long as we're about it—they've got a lot of gas-ovens and gas-stoves inside; that is, out on the Steel Pier, but there isn't one of them that's turning out food. Not yet, anyhow. We've got an idea. Maybe, if the demand becomes great enough they'll start some more of the stoves to turning out cookies. Well, here's hoping.

J. W. TAUSSIG, of the U. G. I., on the Job

Secretaries of Public Utility Associations Organize

Closer Co-operation Between Secretaries Called For

Considerable interest was shown in the unique problems of the secretary of a state or district public utility association at the conference of secretaries held Saturday at the Hotel Traymore. The dean of secretaries of public utility associations, D. L. Gaskill, of Ohio, was present. He has been in the work twenty-four years and from his wealth of experience made many valuable suggestions in connection with state and district association activities.

Among the subjects discussed were: A clearing house for convention and conference dates to avoid serious conflicts; better co-operation with national association headquarters; the planning of convention programs, and keeping members and other secretaries advised of important activities.

E. J. Burke, secretary of the Indiana Gas Association, emphasized the need of some central bureau of information for the part-time secretaries. Secretary J. W. Welsh, of the American Electric Railway Association, and K. R. Boyes, representing the American Gas Association, assured the secretaries of the interest of the national associations in any movement to bring about greater uniformity in specifications, rules and standards throughout the country. R. V. Prather, secretary of the Illinois Associations, emphasized the importance of secretaries in the various states getting acquainted and advising each other regarding their specific problems.

The conference closed by electing as president E. N. Willis, Dallas, Texas, secretary of the Southwest Public Service Association, and, as secretary, John N. Cadby, Madison, Wis., executive secretary of the Wisconsin Utilities Association. The next conference is to be held in Chicago early in 1924.

Koppers Coal Gas Plant for Utica, N. Y.

The Koppers Company has received a contract from the Utica Gas and Electric Company, Utica, N. Y., to build twenty-one (21) Koppers Small Gas Ovens, each having a capacity of six and three-quarter tons of coal per charge; together with three Koppers producers, which will furnish gas for heating the ovens. This plant will have a normal capacity of 3,000,000 cubic feet of 575 B.t.u. gas per day, based on a carbonizing time of twelve hours.

WINNERS OF GAS SALES APPLIANCE CONTEST

(Continued from page 340)

We are in the lead so far, and are out to bring the prize home to Orlando.

Our determination to win is your opportunity to save.

Here is our Extra Special Offer for August only.

For any new consumer not on our existing mains, we will extend without the usual deposit for extension, a distance of 200 feet provided at least $50.00 worth of appliances are ordered from us for immediate installation.

For any new consumer where less than 100 feet extension is required on our present mains, we will give a complete set of Aluminum Cooking Dishes (worth $10.00) provided at least $50.00 worth of appliances are ordered from us for immediate installation.

In addition, we offer as special terms—

Only ten per cent with order and ten per cent each month for nine months.

We appreciate your support during the past eleven months, and earnestly urge your careful consideration of the above offer.

Orlando Gas Company

Headquarters for Gas Appliances
18 W. Pine St. Phone 6

HAROLD GEISSE, President Wisconsin Utilities Association

Melting Steel With Gas Exhibit Attracting Much Attention

"Flowing Gold" isn't the name of a movie, as far as visitors to the Steel Pier are concerned. If they saw what came out of the blue kettle set up on the right side of the entrance to the American Gas Association's preserve on the Boardwalk. To be exact, it wasn't gold, but molten steel that was finally poured out as dusk came on yesterday and will, we have been assured, be poured out several times more before the week is out.

Demonstrating what gas can do, the exhibit at the entrance to the pier combines a supply of city gas with air under pressure, let the metal melt and before very long is able to tip the container and have it run like out water. A temperature of 1900 degrees Fahrenheit was attained in the exhibition. It was a bit of a strain on the nerves of one who isn't used to more than 120 degrees at a time and even that for no very extended period.

Gas a fuel which may be utilized for every possible purpose is the idea. Education is recognized as the need to put the idea across and so that exhibit is being staged by the Combustion Utilities Company to convince the watchers that even the steel industry, well-organized and thought out as it is, still has room for improvement if it has not yet adopted the use of gas as a fuel for attaining any degree of heat that the industry could possibly have need for.

The heating of the metal seemed simple enough—a matter of turning on the gas, turning on the air and waiting. And certainly the amount of gas used was less expensive than the coal that would have been needed to do the same work. There is food for thought in that idea. What with coal being a more or less problematical source of heat, strikes, combining with a rapidly shrinking reserve, make it an uncertain factor. There is wisdom in the ascertaining of the practicability of utilizing some other natural fuel as a source of the heat needed in the steel industry—or for that matter, in almost any industry.

There are a couple of posters on the walls of the exhibition booth facing the Boardwalk which list some of the industries in which gas has been put to use as a fuel.

C. A. JEFFRIES, President Canadian Gas Association

NOTE

The papers and reports, appearing in this Convention Daily, have been abstracted in most cases, considerable matter having been deleted for want of space. Similarly a number of papers delivered at the meetings held as per official program have been omitted. It is planned to publish these papers in later regular issues of the American Gas Journal. Complete papers and reports can be obtained from the American Gas Association.

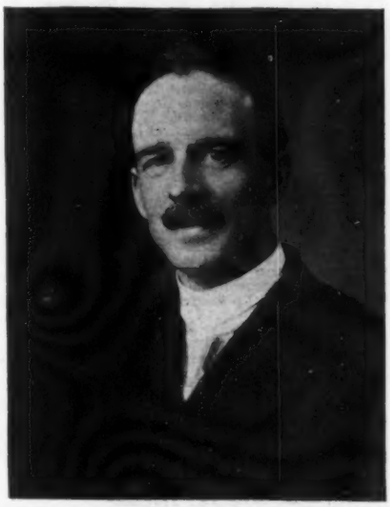
F. S. NORRIS, Retiring Secretary Canadian Gas Association

G. W. Allen, New Secretary Canadian Gas Association

We note with regret the resignation of F. S. Norris, Executive Secretary of the Canadian Gas Association and are glad to welcome back again into the gas fraternity G. W. Allen, his successor.

Mr. Norris has resigned to take charge of a gas property in Canada and carries with him the best wishes of both Canadian and American gas men.

Mr. Allen was associated with the gas industry in Canada for many years and then entered another field. Gas men will be pleased to learn he is with them again. Besides acting as Executive Secretary of the Canadian Gas Association, he is also to take the office of Editor of the Intercolonial Gas Journal, Canada.



G. W. ALLEN, New Secretary-Treasurer Canadian Gas Association

Some of the Early Arrivals At the Convention

Registration Up to 3 P. M., Monday, October 15, 1923

A

Aaron, Charles T.; Boston, Mass.; Traymore
Africa, Walter G.; Manchester, N. H.; Chalfonte
Aikin, H. C.; Ardmore, Pa.; Traymore
Albrecht, C. H.; Baltimore, Pa.; St. Charles
Allen, William H., Jr.; New York City; Continental
Almberg, H. E.; New York City; Haddon Hall
Alrich, Herbert W.; New York City; Ambassador
Altick, Jos. G.; Savannah, Ga.; Strand
Asendorf, Carl F.; Chicago, Ill.; Traymore
Ayer, J. W.; Mercer Pa.; Haddon Hall

B

Baker, Vernon; St. Louis, Mo.; Traymore
Barnum, Dana D.; Boston, Mass.; Ritz-Carlton
Bartel, Emil J.; Brooklyn, N. Y.; Strand
Barthold, C. A.; Kalamazoo, Mich.; Breakers
Basquine, Eugene E.; Bronx, N. Y.; Shelburne
Battin, H. S.; Philadelphia, Pa.; Traymore
Bradley, C. W.; Chicago, Ill.; Traymore
Bauer, E. H.; Worchester, Mass.; Traymore
Baxter, Edw. O.; Yonkers, N. Y.; Glaslyn-Chatham
Baxter, Lewis, New York, N. Y.; Strand
Bean, Howard S.; Washington, D. C.
Bigelow, Lucius S.; Buffalo, N. Y.; Haddon Hall
Bischoff, Wm. H.; Savannah, Ga.; Strand
Bishop, Wm.; Brooklyn, N. Y.; Raleigh
Blome, Geo.; Baltimore, Md.; Traymore
Blowers, Wm. B.; New York City; Strand
Bonner, John J.; Gloucester, N. J.; Jerome
Ball, F. T.; Fitchburg, Mass.; Traymore
Bosworth, D. L.; Nashville, Tenn.; Breakers
Bradley, W. H.; Springfield, Mass.; Chalfont
Bratton, S. C.; Birmingham, Ala.; Strand
Brayer, John F.; Rochester, N. Y.; Schlitz
Breen, Charles J.; Rockford, Ill.; Traymore
Brown, John Carey; Atlanta, Ga.; Chalfonte
Brown, M. A.; Kokomo, Ind.; Ritz-Carlton
Brown, R. B.; Milwaukee, Wis.; Traymore
Brownell, H. R.; Detroit, Mich.; Traymore
Bruce, W. Robert; Rochester, N. Y.; Brighton
Bruder, Julius; Albany, N. Y.; Breakers
Burke, E. J.; Indianapolis, Ind.; Traymore

C

Cadwallader, F. D.; Brookline, Mass.; Chalfonte
Conroy, D. T.; Taunton, Mass.; Traymore
Cooper, Wm. H.; Amsterdam, N. Y.; Ritz-Carlton
Crane, Wm. M.; New York City; Marlborough
Cottle, Henry F.; Allston, Mass.; Continental
Combs, Mahlon A.; Jersey City, N. J.; Chalfonte
Carkeek, Harvey T.; Philadelphia, Pa.; Strand
Cadby, John N.; Milwaukee, Wis.; Haddon Hall
Campbell, L. L.; New York City; Strand
Castor, W. A.; Philadelphia, Pa.; Seaside
Chandler, Harry P.; Elizabeth, N. J.; Strand
Caton, T. E.; Albion, Mich.; Brighton
Chisholm, Charles T.; Chicago, Ill.; Chalfonte
Collier, Charles Allen; Atlanta, Ga.; Chalfonte
Clark, J. C. D.; Boston, Mass.; Traymore
Corson, A. S.; Philadelphia, Pa.; Chalfonte
Cowles, H. C.; Peekskill, N. Y.; Raleigh
Crenshaw, L. G.; St. Louis, Mo.; Traymore
Christmas, Henry N.; New York City; Chalfonte
Clark, Wm. J.; Mt. Vernon, N. Y.; Traymore
Clifford, T. C.; East Pittsburgh, Pa.; Haddon Hall
Clinton, DeWitt; Worchester, Mass.; Haddon Hall
Cole, Geo. M.; Plattsburg, N. Y.; Ambassador
Connolly, John P.; Charleston, S. C.; Strand
Cowdery, E. G.; Chicago, Ill.; Traymore
Cressler, Geo. H.; Cincinnati, Ohio; Traymore
Crevi ston, A. E.; Atlanta, Ga.; Traymore
Crawford, R. P.; Doylestown, Pa.; Strand
Crouch, Walter D.; New York City; Shelburne
Curfman, Floyd G.; New York City; Breakers

D

Derwent, Watson E.; Rockford, Ill.; Traymore
Daily, E. V.; Chicago, Ill.; Strand
Daly, M. B.; Cleveland, O.; Traymore
Dains, H. P.; W. Collingswood, N. J.; Haddon Hall
Davis, Merrill N.; Bradford, Pa.; Traymore
DeFrese, S. E.; Rome, Ga.; Breakers
Doering, H. A.; Mt. Vernon, N. Y.; Traymore
Davidson, A. E.; Newark, N. J.; Ambassador
DeFreitas, Wm. E.; New York City; Bothwell
Delaney, Paul J.; New York City; Llewellyn
Dickey, Charles H.; New York City; Sea View Club
Dieterich, F. W.; Elgin, Ill.; Haddon Hall
Doull, R. S.; New York City; Traymore
Duff. Jackson; Jamaica, L. I.; Chalfonte
Dushane, C. Benson, Jr.; Baltimore, Md.; Traymore
Ehlers, W. A.; New York City; Haddon Hall
Elmer, C. B.; New York City; Chalfonte

Where the Exhibits Are Located

F

Fisher, Fred W.; Rochester, N. Y.; Traymore
Fisher, George T.; New York City; Traymore
Foster, F. H.; Chicago, Ill.; Traymore
Fairchild, S. E., Jr.; Ambler, Pa.; Traymore
Fortendyke, I. F.; Jamesville, Wis.; Ambassador
Fieser, Frank J.; New York City; Traymore
Fitzgerald, John J.; Holyoke, Mass.; Haddon Hall
Flautt, John J.; New Orleans, La.; Breakers
Fowler, Irving D.; Meriden, Conn.; Strand
Fox, M. C.; Philadelphia, Pa.; Seaside
Friedman, Arthur; Cleveland, O.; Ambassador
Friedman, Leo; Cleveland, O.; Ambassador

G

Gatchell, Frank B.; Baltimore, Md.; St. Charles
Greene, H. S.; Aurora, Ill.; Morton
Ganser, H. H.; Norristown, Pa.; Traymore
Geddes, John W.; Boston, Mass.; Breakers
Ghegan, John H.; Brooklyn, N. Y.; Warwick
Gillingham, H. D.; Montclair, N. J.; Traymore
Goodman, Morris; Bronx, N. Y.; Shelburne
Gribbel, W. Griffith; Philadelphia, Pa.; Traymore
Griffiths, Norman J.; Brooklyn, N. Y.; Haddon Hall

H

Halyburton, Harold S.; Philadelphia, Pa.; Strand
Habfast, Chas. H.; Burlington, N. J.; Strand
Hamilton, D. M.; Detroit, Mich.; Traymore
Hammermeister, Otto F.; Harvey, Ill.; Chalfonte
Harper, Robert B.; Chicago, Ill.; Ambassador
Hartzell, A. C.; Greenville, Pa.; Haddon Hall
Haskell, W. G., Jr.; Cedar Rapids, Ia.; Breakers
Hayword, R. B.; Traymore
Haug, J. S.; Philadelphia, Pa.; Traymore
Heins, J. W.; Philadelphia, Pa.; Strand
Hunter, W. Q.; Dorchester, Mass.; Seaside
Haverly, O. L.; Sayre, Pa.; Traymore
Hart, R. W.; New York City; Chalfonte
Harmer, Wm. P.; Philadelphia, Pa.; Strand
Hepburn, Wm. M.; New York City; Shelburne
Herwig, Frantz; Milwaukee, Wis.; Haddon Hall
Higgins, A. A.; Providence, R. I.; Traymore
Hill, F. H.; Elmira, N. Y.; Brighton
Hitzel, Aldro B.; Spartanburg, S. C.; Breakers
Holman, C. L.; St. Louis, Mo.; Traymore
Hubley, George W.; Louisville, Ky.; Marlborough
Humphrey, A. H.; New York City; Traymore
Hutchins, R. J.; Dayton, O.; Traymore

J

Jalien, John J.; New York City; Traymore
Jacues, C. F.; Aurora, Ill.; Strand
Jasper, T. G.; New York City; Breakers
Jefferis, C. A.; Toronto, Canada; Dennis
Jackson, Thomas H.; Philadelphia, Pa.; Strand
Jefferson, W. H.; New York City; Traymore
Johnson, N. H.; Richmond, Ind.; Traymore

K

Kahle, R. L.; St. Louis, Mo.; Ritz-Carlton
Kelly, F. J.; New York City; Bothwell
Kennedy, F. J.; New York City; Traymore
Klumpp, J. B.; Philadelphia, Pa.; Traymore
Krake, S. G.; New York City; Chalfonte
Kunberger, A. Fred.; Philadelphia, Pa.; Traymore
Klein, Alfred K.; New York City; Traymore
Kennedy, James S.; New York City; Haddon Hall
King, Thompson; Pittsburgh, Pa.; Strand
Kirkpatrick, John K.; Holyoke, Mass.; Haddon Hall
Kelin, Bernard D.; Long Island, N. Y.; Dennis
Knapp, F. H.; Pittsburgh, Pa.; Ambassador
Knauss, John B.; Portsmouth, O.; Milton
Knight, Wm. H.; Cleveland, O.; Chalfonte
Krick, K. C.; Columbus, O.; Traymore

L

Lambert, N. D.; Brooklyn, N. Y.; Shapiro-Brittain
Langelier, Joseph A.; Providence, L. I.; Strand
Leinroth, J. P.; Newark, N. J.; Strand
Llewellyn, A. J.; Kingston, Pa.; St. Charles
Little, S. E.; Lorain, O.; Traymore
Lawall, H. J.; Philadelphia, Pa.; Traymore
Lemke, Frank A.; Kalamazoo, Mich.; Traymore
Llewellyn, Joseph A.; Brooklyn, N. Y.; Richmond
Long, H. J.; New Brunswick, N. J.; Strand
Lowe, John; New York City; Traymore
Luthe, Julius K.; Milwaukee, Wis.; Traymore
Lyon, Charles L.; Charleston, S. C.; Haddon Hall

M

Marshall, F. L.; Augusta, Ga.; Haddon Hall
Mason, Edwin A.; Chicago, Ill.; Colton Manor
Maurer, R. H.; New York City; Traymore
Millspaugh, George M.; Philadelphia, Pa.; Strand
Misner, Ira C.; Chicago, Ill.; Traymore
Moecler, Henry, Jr.; Homewood, Ill.; Chalfonte
Montgomery, John E.; Birmingham, Ala.; Traymere
Morris, Edgar; Washington, D. C.; Strand
Moore, George W.; Miami, Fla.; Ambassador
Metz, Eugene; Kansas City, Mo.; Traymore
Mellick, Thos. L.; Plainfield, N. J.; Traymore
Morris, W. A.; New York City; Traymore
Moss, R. L.; Santa Monica, Cal.; Haddon Hall
Mudgett, A. P.; Wabash, Ind.; Traymore
Muller, J. H.; New York City; Strand
McCarthy, Ed. A.; New York City; Traymore
McDonald, Donald; New York City; Sea View Club
McDonald, Frederick; Albany, N. Y.; Marlborough
McDonald, T. Warfield; York, Pa.; Chalfonte
McDonald, H. E.; Greenville, S. C.; Traymore
McEnaney, P. F.; Brooklyn, N. Y.; Ambassador
McKinney, Charles B.; Dallas, Tex.; Traymore
McIlhenny, John D.; Philadelphia, Pa.; Traymore
McKean, Norton; Boston, Mass.; Traymore
McKee, James; Brooklyn, N. Y.; Breakers
McLain, J. E.; Massillon, O.; Ritz-Carlton
McNary, John B.; Hamilton, Canada; Shelburne
McPherson, J. H.; Boston, Mass.; Strand

N

Nash, Clinton A.; Davenport, Ia.; Breakers
Neubert, E. J.; Erie, Pa.; Traymore
Nicholls, J. Shane, Jr.; New York City; Breakers
Nilan, F. M.; Mt. Vernon, N. Y.; 103 S. New Jersey
Norman, E. A.; New York City; Traymore
Norton, Harry A.; Boston, Mass.; Sea View Club

O

O'Brien, R. L.; Detroit, Mich.; Traymore
Ofeldt, E. G.; Nyack, N. Y.; Breakers

P

Pace, Homer M.; Charleston, S. C.; Strand
Parker, Thomas, Jr.; Ogden, Utah; Shelburne
Patton, W. H.; Waterbury, Conn.; Shelburne
Pease, W. T.; Boston, Mass.; Shelburne
Peck, John V.; Detroit, Mich.; Traymore
Peffly, I. W.; New York City; Chalfonte
Perretti, Amato; New York City; Breakers
Peters, A. J.; Flushing, N. Y.; Wiltshire
Pratt, E. W.; Brooklyn, N. Y.; Pennhurst
Pleasant, D. G.; Montgomery, Ala.; Breakers
Phelps, Walter C.; New York City; Dennis
Pihlman, Arthur A.; New York City; Traymore
Pompa, Andrew; Long Island, N. Y.; Albermarle
Potter, Ormsby F.; Newark, N. J.; Haddon Hall
Printz, Chas. H.; Cleveland, O.; Traymore
Pulliam, J. P.; Milwaukee, Wis.; Traymore
Payne, F. H.; Erie, Pa.; Sea View Club
Payne, Calvin N.; Erie, Pa.; Traymore
Parker, Geo. W.; St. Louis, Mo.; Traymore
Putnam, Eben F.; Norwalk, Conn.; Ambassador

R

Rasch, Wm. T.; New York City; Traymore
Ratcliff, Thomas C.; Baltimore, Md.; Traymore
Rawson, Irwin; St. Louis, Mo.; Traymore
Rees, Richard; Kalamazoo, Mich.; Breakers
Reinicler, C. E.; Philadelphia, Pa.; Chalfonte
Reese, John G.; Baltimore, Md.; Haddon Hall
Reid, J. F.; New York City; Chalfonte
Reiner, Otto; Paterson, N. J.; Chalfonte
Roper, Mabon P.; Rockford, Ill.; Traymore
Rhoades, W. R.; Sunbury, Pa.; Ambassador
Ridley, C. L., Jr.; Nashville, Tenn.; Breakers
Roberts, C. V.; Philadelphia, Pa.; Plaza
Roberts, Earl W.; Detroit, Mich.; Traymore
Roberts, W. B., Jr.; Detroit, Mich.; Fredonia
Robertshaw, G. A.; Youngwood, Pa.; Shelburne
Rolston, R. J.; Philadelphia, Pa.; Traymore
Royer, Ray W.; Athens, O.; Shelburne
Ryan, Bernard; New York City; Pennhurst

S

Sanderson, L. E.; Rochester, N. Y.; Chalfonte
Sands, J. M.; Cleveland, O.; Traymore
Stiles, L. S.; Brooklyn, N. Y.; Dennis
Steere, F. W.; Detroit, Mich.; Haddon Hall
Sherwood, J. M.; New York City; Shelbourne
Schmidt, F. W.; Jersey City, N. J.; Dennis
Schwabe, W. P.; Thompsonville, Conn.; Shelburne
Sargeant, Frank W.; Indianapolis, Ind.; Ritz-Carlton
Sargent, Fred H.; Lawrence, Mass.; Strand
Savory, T. C.; Boston, Mass.
Snyder, A. I.; Detroit, Mich.; Traymore
Savage, Frank J.; Newark, N. J.; Breakers
Schall, Henry D.; Detroit, Mich.; Traymore
Schmidt, Wm., Jr.; Baltimore, Md.; Traymore
Schutt, H. L.; Buffalo, N. Y.; Chalfonte
Scott, John A.; New Haven, Conn.; Breakers
Segrave, Harold J.; Pittsburgh, Pa.; Continental
Shadwell, Gilbert C.; Freeport, N. Y.; Arlington
Shaul, C. D.; Terre Haute, Ind.; Traymore
Simler, O. P.; Lorain, O.; Shelburne
Sinai, Alexander; New York City; Breakers
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Smith, J. Weaver; Indianapolis, Ind.; Traymore
Smith, Wm. F.; Brooklyn, N. Y.; Raleigh
Speidel, L.; Pittsburgh, Pa.; Ritz-Carlton
Stacey, Wayne; Cincinnati, O.; Ambassador
Stetser, Jesse R.; Gloucester, N. J.; Traymore
Stevens, Chas. W.; Columbus, O.; Chalfonte
Stevens, E. M.; Columbus, O.; Chalfonte
Stevens, F. E.; Columbus, O.; Chalfonte
Stiteler, Herbert E.; Philadelphia, Pa.; Ambassador
Strobridge, William; Baltimore, Md.; Haddon Hall
Sumner, James H.; Cambridge, Mass.; Breakers
Swan, Ada Bessie; Newark, N. J.; Haddon Hall

T

Talento, Rocco F.; New York City; Breakers
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Timm, C. F.; Yonkers, N. Y.; Chalfonte
Turnbull, J. A.; Thompsonville, Conn.; Marlborough
Turner, R.; Harrisburgh, Pa.; Schlitz
Taylor, P. D.; Philadelphia, Pa.; Traymore
Terradell, Wm. F., Jr.; Plainfield, N. J.; Shoreham
Thompson, Theodore; Harvey, Ill.; Chalfonte
Tinnerman, A. H.; Cleveland, O.; Breakers
Toombs, F. P.; New York City; Strand
Tuttle, T. T.; Norwalk, Conn.; Traymore

V

Van Arsdel, E.; Indianapolis, Ind.; Traymore
Vincent, G. I.; Syracuse, N. Y.; Chalfonte

W

Wallace, R. A.; Quebec, Canada; Shelburne
Wardell, C. W.; Gloucester, N. J.; Haddon Hall
Ward, F. F.; Brooklyn, N. Y.; Dennis
Warran, P. D.; Chicago, Ill.; Ambassador
Weaver, Eugene A.; Toledo, O.; Traymore
Weaver, Fred. A.; Mansfield, O.; Traymore
Weiser, John A.; York, Pa.; Chalfonte
Wells, Fred. K.; Boston, Mass.; Strand
Wells, Norman W.; Petoskey, Mich.; Breakers
Weston, Edger C.; Athens, Ga.; Traymore
Werner, Charles; New York City; Breakers
Weston, J. A.; Lansing, Mich.; Traymore
Witherby, Edwin E.; Boston, Mass.; Traymore
Wiberley, George; New York City; Chalfonte
Willert, A. E.; Wheeling, W. Va.; Traymore
Wilson, H. C.; Cleveland, O.; Chalfonte
Wogan, Frederick R.; Brooklyn, N. Y.; Dennis
Wolff, M. S.; New York City; Traymore
Work, R. D.; Philadelphia, Pa.; Strand

Y

Yetter, Louis N.; Atlantic City, N. J.; Chalfonte
Young, L. B.; Detroit, Mich.; Traymore
Young, J. J.; New York City; Haddon Hall

American Gas Journal

SIXTY-FIFTH YEAR

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ISMAR GINSBERG, Technical Editor
CHARLES S. MYERS, Field Representative
Editorial Offices: Atlantic City, Chalfonte Hotel.

Carbonization and Complete Gasification of Coal

Report of 1923 Committee

Physical laws of coal carbonization—Carbonization of mixed coals—Complete gasification with oxygen

R. G. Porter, Chairman

Philadelphia Suburban Company, Chester, Pa.

This report was read before the Tuesday meeting of the Technical Section of the American Gas Association, assembled in convention at Atlantic City.

THE work of your Carbonization Committee, for this year, has been divided into the same sections as last year, namely:

Operators
Complete Gasification of Coal
Low Temperature Carbonization
Builders

These sections, this committee feels, should be continued next year.

The question did arise as to whether complete gasification of coal warranted a separate section, which was brought about solely by the fact that there was a lack of processes to be found that have reached a stage of development where operating figures are available for this report.

This section, however, has done a great deal of valuable work in their process of elimination and, therefore, should be continued. Any activity is valuable that keeps the Industry advised as to such developments as are available in this field, and we should not close our eyes to new theories and possibilities, but have men prepared to observe and study them, and then give us the benefit of their work.

Professor Demorest's carbonizing tests comparing results obtained using run of mine and ¾" screened coal, are embodied in this report, and have been completed most satisfactorily.

The question of research, as far as it pertains to the work of this committee, has been discussed at some length with a view of possibly obtaining a fixed sum each year from the Association, to be applied on such work as may be deemed advisable, and also to insure the continuity of such work from year to year.

We must admit that research and development demand in most cases immense amounts of money, in order that such work be conclusive and worthwhile. Let us not attempt to set any fixed sum required for research from year to year, but rather carefully select vital and fundamental problems. A subject truly worthy of research is also worthy of courageous effort to obtain the required funds to carry on the work. Unless we face this subject squarely, we will be likely to find ourselves permitting those outside our industry to do such work, while we ultimately must pay the bill, but with the addition of interest charges on the money expended in the form of profits.

Essentials of Research

When research is contemplated, let us carefully consider:

(1) Whether the information is of sufficiently fundamental importance to warrant its cost in view of the other demands within the Association for research;

(2) Whether, when undertaken, there is a reasonable possibility of accomplishing practical results;

(3) Estimate as accurately as possible the expense involved, taking into consideration whether the existing gas companies, or outside research facilities are available for the work and interested in cooperating with us;

(4) Probable time required for the work and when an appropriation is necessary what proportion of the appropriation will be spent in the fiscal year.

Recommendations

A recommendation after such consideration, outlining fully the need of research, and placed before the Managing Committee of our section, as to how and when the appropriation will be disbursed, will undoubtedly receive most careful consideration, and if approved by them, they will draft a resolution to be presented by the chairman to the Executive Board for final action.

The continuity of the work of this committee, from year to year, has been a subject brought up several times in the past, as well as the loss in time each year during the process of forming a new committee on a working basis. Rather than establish any set rules of procedure, we have adopted the suggestion of our secretary. It was his idea that the chairman should prepare, prior to the Convention each fall, a letter for the incoming chairman. This letter should give a brief outline suggesting work to be carried on into the next year, and also propose a number of members of the committee, who, on account of their work during the past year, are especially equipped to act as chairmen of the several sections of the new committee.

We hope this procedure will materially aid in the rapid formation of the new committee, and yet in no way hamper the incoming chairman by any fixed rule of procedure, had they been adopted.

The work which your committee has been able to accomplish this year is presented in the following pages under the sectional headings heretofore enumerated, with the exception of a paper prepared by Mr. A. W. Warner, which follows immediately after this introduction.

The attendance at Committee meetings and interest shown by the members has been most gratifying, and they all deeply appreciate the assistance given by our secretary.

Report of The Operators' Section

Plant operating results—Operative code—Coal carbonizing tests

A. C. Klein, Chairman
Stone & Webster, Boston, Mass.

The work outlined for the Operators' Section at the organization meeting included the following:

1. To keep in touch with and summarize the latest developments and operating results of various types of plants.
2. To educate operators of coal gas plants to compile their operating results on a standard basis so that their figures would be comparable.
3. To carry to a conclusion the work initiated by last year's section of preparing forms of standard data sheets which woud give comparable results for all plants and would be designed to fit plants of all sizes.
4. To standardize upon the type and number of instruments which a carbonizing plant should have in order to give results which will be valuable to the industry at large and to their own operation.
5. To keep in close touch with and supervise the research work being conducted by Professor Demorest at Ohio State University on the relative value of run-of-mine and screened coal for carbonizing purposes.

Plant Operating Results

In order to obtain information regarding the operating results of various types of plants and at the same time to obtain knowledge of what individual plants were doing in the way of recording data, letters were sent to all the carbonizing plants in the country enclosing copies of the general data sheet and operating data sheet, as drawn up by last year's committee, with the request that they be filled out and returned. In all, 72 companies complied with the request and returned the data sheets filled out with the information requested.

These answers have been carefully scrutinized by the committee in order to determine which plants were equipped with instruments and were following the practice outlined by last year's committee, and were, therefore, obtaining figures which could be compared with corresponding figures obtained by other plants of the same or different type of construction.

The committee is glad to report that the companies which have submitted operating data include most of the recent modern coal gas installations.

Gas Company Should Meter Gas

The statement that a gas company should meter the gas which it makes is obviously too self-evident to require comment. Not only is the company which fails to do so without any accurate information concerning its plant operations, but it has, in addition, no check on the conditions which exist in its distribution system. Leakage may mount to a prohibitive figure and the fact still escape notice unless the amount of gas which the plant makes and delivers into the mains is known.

Where a plant has only one meter of the flow type it should be regularly checked against a holder. While this method is not strictly accurate, it still gives a valuable check. Meters of the displacement type can easily be checked periodically by comparison with a small test meter connected in series.

Coke Weighed Before Quenching

The amount of coke made should preferably be weighed before quenching. Where this is not possible, coke should be weighed immediately after quenching and a correction made for its moisture content. Where plant records are based upon the weight of coke as sold, its varying moisture content from day to day and from season to season may result in erroneous and erratic figures. In some small plants it may be difficult to weigh all of the coke as made. In such cases it is possible to make tests at periodic intervals to determine the percentage which the production of coke bears to the quantity of coal used. The committee recommends that this method be used only where it is impossible to weigh all coke as produced and that the tests be made at intervals of not over a month apart. At the time the tests are made it would be well to also analyze the coal and coke and to make a comparison of their ash content as a check.

Coal Analysis

Only 47 of the 72 companies reporting made any periodical analysis of the coal which they purchased. Over one-third of them were evidently without any knowledge of the variations which take place in the quality of their principal raw material. There are many reasons why gas companies should analyze the coal which they purchase. It is the only way that they can prove whether dealers are furnishing them with inferior fuel. It enables them to determine in advance what operating changes to make so as to obtain the best results from new grades of coal. It cannot fail to produce a beneficial moral effect upon the operators who are responsible for efficient plant operation.

The committee very strongly recommends that all gas companies, no matter how small, arrange to sample every shipment of coal which they receive and to arrange for periodical coal analyses. If coal is being received from the same mine, monthly analyses will usually be sufficient. The cost of sampling and analyzing coal will not exceed a maximum of 5 cents per ton, which is cheap insurance for safeguarding the quality of coal and for maintaining efficient operation. A plant which consumes one car of coal per day or more can well afford to employ a chemist who can not only analyze coal but save his salary many times over by furnishing the plant superintendent with other operating information which will enable operating expenses to be reduced.

Heating Value of Gas

Eight of the gas companies replying to the questionnaire stated that they did not test the heating value of their gas. It is an acknowledged fact that the gas companies which give the best service to their consumers are those which deliver a uniform quality of gas from day to day. Fluctuations in heating value can only be prevented by taking frequent heating value readings. In addition, each B.t.u. delivered in excess of the requirements costs the company from ¼ to ½ cent per 1000 cubic feet. In large plants the installation of a recording calorimeter is recommended. For smaller plants there are several makes of calorimeter of a relatively inexpensive type which are available.

Formation of Breeze

The formation of breeze, in excessive amounts, is an element of waste in itself, as well as an indication of poor quality of the lump coke being made for sale. Breeze has a sale value of only about one-third of the coke from which it is produced, and consequently every ton represents a loss to the company of from $4.00 to $8.00.

In addition, its production in excessive amounts is an indication of soft or of brittle coke, both of which break in handling, producing excessive breeze at the plant, and also excessive breakage and breeze after delivery to customers.

By getting daily information of the quantity of breeze made the heats in the setting can be adjusted as and when required to maintain a maximum output of high grade lump coke, and a minimum of breeze.

The committee wishes to emphasize that its object in compiling these statistics is to be of help to the industry—both by presenting a survey of what companies are doing, and by pointing out ways in which plant operators can improve their results. To that end, it has been arranged that the replies which have been received will be kept on file at the Association headquarters. Members who desire further details regarding the operation of any particular plant in the list will, upon addressing inquiries to the Association headquarters, be placed in direct communication with the company in whose results they are interested, provided there is no objection from the latter.

Operating Code

As the work of the committee progressed it became evident that it would be advisable to expand the work included in Section 3 into a code which could be used for the complete test of a carbonization plant. In this connection it was also considered advisable to incorporate the specification of testing and recording instruments in this code.

The committee has prepared a tentative outline (given in original report) of the proposed code for testing carbonizing plants. The real index of the performance of a carbonizing plant is in its heat balance and in its weight balance and the outline has therefore been drawn up with the idea that it can serve as the basis of a code which will specify the data and information necessary to compile both the heat and weight balances.

Coal Carbonizing Tests

During the past year, the experiments started by last year's committee have been carried on to completion.

The data, results and conclusions are given in detail in Prof. Demorest's paper, which is attached. These tests have shown that insofar as the yield and quality of gas and coke are concerned there is very little advantage in using screened coal instead of run-of-mine coal or slack except that the screened coal contains a smaller percentage of ash.

The coal used in the tests was received as run-of-mine coal and was screened at the experimental plant. The analyses of the slack, lump and run-of-mine coal obtained as a sample showed little difference in ash content. Probably in commercial operation the small difference in quantity and quality of gas and coke obtained from slack and lump coals might be somewhat greater than the figures shown by the experiments, inasmuch as commercial slack coal frequently contains a materially larger percentage of ash than screened coal. As Prof. Demorest brings out, there may also be other economic factors which would affect the choice of coal. These are largely a matter of local conditions that must be balanced against the increased cost of screened coal in each individual instance. The tests do show, however, that slack coal of similar analysis will give substantially the same number of heat units per pound in the form of gas, and that the quantity and quality of coke made from slack coal is not materially different than that made from lump coal.

There has also been contributed, as part of the report of the operators' section, a paper by Prof. D. W. Wilson, entitled "Mechanism of High Temperature in Coal Carbonization."

Carbonization Yields From Run of Mine, Slack and $+\frac{3}{4}''$ Coals

Prof. D. J. Demorest

Ohio State University, Columbus, Ohio.

Description of Plant

(A detailed description of the plant in which the tests were made is given in the original paper).

Coals Used

It was originally intended to use at least a half dozen coals but owing to various exasperating delays and accidents it was only possible to finish work on three. The coals were shipped to the University siding in car load lots, direct from the mine. The tests required about 25 tons of each coal and the rest of the coal was purchased by the University for power purposes. The coals were diverted to the

University by the following companies from their regular supply except that the coals for these tests were run of mine:

Providence Gas Co., Stonega Coal Co., No. 3 Rhoda Mine.

Rockford Gas Light and Coke Co., Holly-Stover Coal Co., Benham, Ky.

Rochester Gas & Electric Corp., Pittsburgh Coal Co., Mine 164 (Montour).

Coal Preparation

From each car of coal was taken about 8 tons of coal to be used as run of mine sample and 15 tons which were screened to obtain the slack and plus ¾" samples in sufficient amounts. The plus ¾ and run of mine samples were then passed through a set of Jeffrey rolls set at ¾" opening. From this time on the three kinds of samples were treated exactly alike.

Carbonization

The following description of one run will do for all runs:

Two thousand fifty pounds of coal are carefully weighed and hoisted to the bun above the retort. The temperature in the top combustion chamber is taken, all products from the previous runs are carefully removed and fresh solution is put in the acid launder and seals and all meters set at zero. The retort top door is opened and the coal passed through a chute from the bin into the retort. While the coal is running into the retort samples are rapidly dipped out of the running stream, totaling approximately 50 pounds. As soon as the entire charge is in the retort the top door is tightly closed, the exhauster started, circulating pump started and then one operator constantly watches the exhauster to keep suction on the retort as nearly as possible 1/20" of water. The sample is weighed and taken to the laboratory for analysis.

As soon as it is obvious that the run is proceeding regularly 1/20 of the total amount of gas is bypassed after passing the station meter through the light oil scrubber. As a check on the recovery of light oils in the scrubber a regular light oil determination train is operated during the entire run. (The results of the scrubber were practically the same as those obtained by the light oil train. The only advantage of the scrubber is that sufficient light oil is obtained to get distillation results.)

Once every hour a titration for H_2S in the gas is made.

Meter Readings

The Smith recording calorimeter and the Bailey indicating meter are frequently inspected to see if the curves of B.t.u. per cu ft. and gas per hour as shown on these meters are normal. If these curves are erratic it indicates a stoppage somewhere in the system. During the run of about 8 hours the two operators are kept busy with the sulfur determinations, testing the acid solution to make sure that it is sufficiently acid, regulating the rate of gas passing through the light oil scrubber to 1/20 of the rate indicated by the Bailey meter, recording the station meter, temperatures and pressures and barometric pressure and keeping the mains open. All angles in the gas main are fitted with crosses so that it is possible to clean out quickly any part of the system that becomes stopped with soot during the run. Each coal has a temperature at which its gas becomes easily cracked and if that temperature happens to be exceeded much trouble results from soot catching the tar and interfering with the passage of the gas. If this happens it is quickly shown by the way the manometers and meters act.

While the operators are carrying on the test two workmen are preparing, weighing and hoisting the coal for the next run.

The end of the run is always pretty sharply foretold by a rather abrupt drop in the B.t.u. curve of the Smith calorimeter and the rate curve of the Bailey meter. The exact end of the run has been arbitrarily taken as the point where the gas has dropped to a B.t.u. value of 300 per cu. ft. and the rate to 500 cu. ft. per hour.

Rate of Gas Making

The rate of gas-making at the start of run is about 3500 cu. ft. per hour with a B.t.u. value of about 650 per cu. ft.

When the end of the run has arrived the operator quickly stops the circulating pump and exhauster, closes the valves in the gas main (pressure immediately begins to be built up in the retort), climbs to the top of the retort and opens a small valve in the bridge pipe.

The runs were usually finished about 7:00 p. m. In the morning the ammonium sulfate liquor is weighed and sampled, the tar weighed and sampled, the coke discharged and immediately weighed hot, quenched, screened and sampled and all the pipes cleaned (tar in these pipes and mains is weighed with the tar in tar well) and all equipment put in order for the next run.

The station meter reading is recorded, the light oil gas sample reading is recorded, the absorbant oil (benzolized) is weighed and sampled, the Bailey meter and Smith calorimeter meter charts removed and filed. The gas sample taken by the proportioning meter is analyzed for CO_2, C_2H_4, O_2, CO, H_2, CH_4, C_2H_6, N_2, CS_2 and B.t.u. The B.t.u. determinations are made in duplicate.

The equipment is now ready for the next run.

Analysis Made

The coal, coke, tar, ammonia, liquor and absorbent oil are analyzed by the laboratory whenever it may be convenient.

Results

All results for gas volumes and B.t.u. values were figured to standard engineering conditions, 60°F., 30 inches mercury pressure and saturated with water. Sulfur values in the gas are given in grains per 100 cu. ft.

The funds and time available were not sufficient for analysis of all the tars but enough were analyzed to show that the water content averages about 26%

On the basis of the amount of gas made and the total B.t.u. in the gas per ton of coal, the results indicate that screened coal is very little, if any, better than run of mine coal or even slack coal (if fresh). The figures for total B.t.u. per ton average exactly the same for run of mine as for plus ¾" coal, while those for the slack coal are very little lower.

The coke made per ton of coal is practically the same for run of mine, plus ¾ and slack. The screening tests show no notable difference in the quality of the cokes from these three sizes. The shatter tests, likewise, indicate no advantage of the plus ¾" coal over the other sizes.

As far as yields, therefore, from these three coals are concerned it does not seem to be worth the extra cost to buy the seized coal (plus ¾").

It is possible that the slack coal would tend more to heat on long storage and undergo more deterioration, but if the coal is not to be stored a great length of time, this would be unlikely to be of much effect on coals of the type used in the gas industry.

Use of High Ash Coals

If high ash coals were used, there would be more likelihood of the slack coals being decidedly higher in ash than the other sizes and therefore the coke made from such slack might be so high in ash as to greatly injure the sale of the coke. This is not true of the low ash coals used in these tests which are typical of the coals used in the gas industry.

Mechanism of High Temperature Coal Carbonization

By D. W. Wilson

THE USE of ovens of various widths for the carbonization of coal leads naturally to the question as to what is the most economical width. Many considerations must be borne in mind in deciding this, such as construction costs, kind of coal, maintenance, operating, as well as the additional tonnage gained by the narrower oven. One vital question is the definite determination of the relationship between the width of oven and the coking time—all other things being kept equal. A search of the literature failed to reveal any quantitative treatment of this, consequently these experiments were designed with a view toward studying the mechanism by which coke is formed commercially from coal in the by-product oven. The tests described in this paper were performed at various times upon different ovens in a block of sixty Semet Solvay Regenerator ovens placed in operation on September 15, 1920.

The ovens have a height of 10′ 9½" to coal line, an average width of 18½", tapering from 17½ to 19½, and a length of 35.5′. The brick in the heating walls is silica, and have a thickness of 4". The coal was a mixture of Pennsylvania coals, high and low volatile, being so proportioned as to obtain about 27% volatile in the mixed coals. When charged into the ovens, the coal contained 4% free moisture, and as regards size was 70% through an 8 mesh screen. The oven charge was fifteen net tons of wet coal. When these experiments were made, the actual coking time was 17.0 hours and the hottest flue temperatures were from 2500 to 2550° F.

Experimental Methods

It was planned to follow the rate of formation of coke from the oven wall to the center by placing in one horizontal plane between these two points several pipes from each of which simultaneous readings could be made, first, of pressures, second, of temperatures, third, of the composition of gas. It was necessary on one given run to take pressures only, on another, temperatures, and on another, gas analyses. However, it seemed quite certain that the coal used and oven operation were sufficiently uniform from day to day so that results obtained in this manner could be compared without serious error.

Temperature Measurements

For the temperature measurements, Chromel Alumel thermocouples were used. These were connected by compensating leads through a six-point switch to a millivolt meter. Great difficulty was encountered in taking good gas samples. This will be discussed more fully later, but in general the results of gas analyses are included here only as highly qualitative evidence in favor of conclusions which we have drawn from pressure and temperature measurements.

Results

From practical experience it is known and also our temperature curves indicate that the zone of fused coal progresses inward rapidly at first and later goes on at a much slower rate. Due to this knowledge, it seemed reasonable to suppose that the distance of the fusion zone from the oven wall would be related to the time after charging in the form of some power function.

Practical Application

In endeavoring to apply the results of our experimental work to actual coking, we find that we may consider the process to consist of three stages. First, the travel of the fusion zone to within 1½ inches of the center; second, the further travel of this fusion zone to the center; third, further heating of the now fully formed coke to give it strength and drive off the last of the volatile matter. We have been able to set up an equation representing the first part of the process which can be applied to an oven of any width on coal similar to the ones used in this test. For the second and third parts of the process, however, we have had insufficient data to warrant conclusions to be applied to ovens of other widths than the one here investigated. Furthermore, an additional requirement for the application of any of

our equations is, of course, the maintenance of flue temperatures the same as those in use during our experiments. However, a consideration of our results leads to the conclusion that on ovens of different widths in which the same kind of coal is used and in which the same flue temperature is maintained, the ratio of effective widths of the ovens raised to some power should equal the ratio of coking times.

Conclusion

In this paper primarily the following have been included:

1. Temperature and pressure curves are shown, indicating at four, or in some cases, five points from the oven wall to the center, the ehavior of the coal during coking.
2. The equation, $y^{178} = 2.54$ T, has been derived from the pressure measurements only, as shown the progression toward the center of the zone of fused coal.
3. From the temperature measurement isotherms have been drawn indicating the travel inward of the temperatures 500 deg. F., 600 deg. F., 750 deg. F., 900 deg. F., 1000 deg. F. and 1100 deg. F.
4. Equations have been derived for each of these isotherms, holding up to 1.5 inches from the center.
5. Comparison between the equation obtained from pressures and those for the isotherms indicates the fusion zone to occur at an average temperature of 970 deg. F. or 520 deg. C.
6. From data obtained from other published results, it is shown that, other conditions being the same, the following equation applies to practical coking operations:

$(W-1)^{15} = 4.3$ T.

where W = oven width in inches and T = actual coking time—provided the maximum flue temperatures be 2500° F., the coals be similar to those of these tests, and also the variation in the temperatures be not too great.

7. The phenomena of high temperature coal carbonization may be divided into three stages:

(a) The travel of the fusion zone to within 1.5 inches of the center.

(b) The further travel of this zone to the center.

(c) Additional heating of the now fully formed coke to give it strength and to drive off the last quantities of volatile matter.

It is a pleasure to acknowledge here the very considerable assistance rendered both in experimental work and in treatment of results by Messrs. H. L. Rubens, H. I. Beadle and C. R. Myers, 2nd, students in this school, who recently were engaged in the investigation of this problem.

(This paper has been cut considerably for want of space to publish it in its entirety.)

Some Observations on the Mixing of Coals for Carbonization*

By Joseph W. Davis[1]

Introduction

For a number of years it has been considered good coke works' practice to mix coals of high volatile matter content with low volatile coals in order to secure cokes of dense structure suitable for blast furnace use. A further object may be to decrease the sulphur content, particularly in this country where the high volatile coal sometimes runs high in sulphur, and where low sulphur low-volatile coals are available for mixing therewith. The amount of volatile matter required in a good by-product coal is from 25 to 33 per cent, and it is a fact that there are few seams of cal in this country that fill this requirement, due consideration being given to sulphur and ash content. Where the practice of mixing coals is resorted to, the range of volatile matter may be extended to include coals running from 17 to 38 per cent, thus admitting a large number of coals into the by-product class which otherwise would not yield good coke. The chemical qualifications for a coal suitable for by-product coking are given in the Keystone Coal Catalog[2] as follows:

Volatile matter	17 to 38 per cent
Ash	4 to 8 per cent
Sulphur	Under 1½ per cent
Phosphorus	0.02 per cent

These figures are based on actual by-product coking practice, and may doubtless be taken as authoritative. This might not apply to foreign coals, however, since nothing is stipulated as to the quality of the volatile matter, which is indeed an important factor, as will be shown further on where it is evident that the quantity criterion serves well for classes of American coals so far coked, so one is not justified in assuming that is general.

In so far as gas-making properties are concerned, there is probably little to be gained by mixing coals. Here the main requirements are that the coal shall yield the maximum percentage of its calorific value in the form of gas, and that the coke produced shall be of marketable quality. American coals of volatile content, 35 to 38 per cent which have less than 1.25% sulphur and not more than 8 per cent ash are in general considered the best gas coals. The higher the volatile matter within this range the better the gas yield. Coals running over 38 per cent volatile matter are usually high in oxygen and low in available hydrogen, and hence yield a poor gas. They would not serve to mix with low-volatile coals for the purpose of adjusting the volatile matter content

*Published by permission of the Director, Bureau of Mines, Department of Interior.

[1]Fuels chemist, Bureau of Mines.

[2]Keystone Coal Catalog for 1922, p. 220. Keystone Consolidated Publishing Co., Pittsburgh, Pa.

as in the case of by-product coking, since the gas yield would suffer thereby. It is clear that for gas-making purposes the quality of the volatile matter is of prime importance. An English criterion of quality is the oxygen-hydrogen ratio in the coal substance. This should approximate the ratio.

$$\frac{\text{Oxygen}}{\text{Hydrogen}} = 2.0$$

Another criterion which has been proposed is the calorific value of the volatile matter, which it is claimed should approximate 150 B.t.u. per cent of volatile matter present. Clearly this is equivalent to stating that the content of available hydrogen should be a maximum. It is required then, for gas making, that the quantity of volatile matter be high, that the make be high, and that it be rich and that a rich gas be produced. A further quite obvious requirement is that the coal give up its volatile matter quickly, and that the maximum throughout may be secured with minimum outlay in carbonizing equipment.

The Coking Principle

A great deal of research work has been done with the object in view of elucidating the nature of the coking process. Answers have been sought to the questions: (1) why does coal coke? (2) what constituent or group of constituents cause cementation of the heated coal mass? (3) how can one measure the comparative coking power of coals? (4) on what property or properties of the coke-forming constituents does the coke quality depend? Considerable progress has been made toward answers to these questions during the last ten years, but the complete solution of the problem of what causes coking has not yet been obtained. Since the intelligent blending of coals must be based on a knowledge of the coking constituents and some precise measure of their comparative coking power, the object of this paper will be to consider briefly what has been learned on the subject so far, and to draw such general conclusions as may seem justified as to guiding principles. Heretofore, the proper blends to use in coking have been determined largely by direct trial on a commercial scale.

The Proximate and Ultimate Analysis

As indicated above, the usual coal analysis is inadequate to fix the coking power of a coal. The volatile matter content is perhaps the most valuable indication; but this is a measure of total volatile, including that which contributes to the coking properties and all other volatile matter as well. It is thus not even an exact quantity measure of the coking principle, and is useless as a quality measure. Of two coals containing the same quantity of volatile matter, one may produce a fair coke and the other none at all. The amount of oxygen given by the ultimate analysis is of value, since it has been found by experience that coals containing more than 10 per cent oxygen do not produce a good coke. The amount of available hydrogen a coal contains (total hydrogen—⅛ total oxygen) is also indicative of coking power, as it is the ratio of fixed carbon to volatile matter. The calorific value of coal substance is to a certain extent a measure of the richness of the volatile matter; but this and other criteria given by the usual analysis give us no information as to the nature and properties of the coking principle, hence they must be used with caution in estimating the coking properties of coals.

The Action of Solvents

Work on the action of solvents on coal originally had for its object the determination of the chemical structure of the coal substance, and while little progress has been made toward the solution of this problem, recent research has shed considerable light on the nature of coal constituents which cause coking, particularly the action of the heavier solvents such as pyridine and phenol. These solvents are among the most effective as to quantity of coal substance dissolved, probably, as has been suggested, because they depolymerize the volatile matter of the coal. The solutions (probably colloidal) obtained are mixtures of compounds of which the chemical structure has not been determined. It has been shown, however, that they do not contain the active cementing principle of the coal.

Agglutinating or Coking Power

From time to time various empirical methods have been developed which have had the object in view of comparing by direct experiment the relative power of various coals to form coherent cokes. The general procedure is to heat the coal under carefully regulated conditions mixed with various amounts of an inert substance (the maximum amount of inert a coal will take and still produce a coherent coke is taken as a measure of its coking power). A method recently proposed by Sinnatt and Grounds will serve to illustrate the principle:

Method Used in Determining Coking Power

In accordance with this method, a 1-gram sample of the coal to be tested is mixed with carefully sized electrode carbon, and is coked exactly as in the method for volatile matter recommended by the American Chemical Society. The coal is all ground to pass 90 mesh, and the gas carbon (inert) is sized to pass 60 mesh and remain on 90 mesh. A series of tests are made with increasing amounts of inert until the coke button will just fail to sustain a 100-gram weight. The maximum amount of inert which a coal will carry and still sustain the weight is taken as a measure of its agglutinating power. The writers observe that the size of the inert used has a pronounced effect on the results obtained, and show that the determining factor is not the volume of inert, but the surface exposed—that is to say, the more surface exposed the less the agglutinating power. This seems reasonable if one may use the analogy of the cementing power of binder in briquetting practice. Here a fine coal within certain limits will take more binder than a coarser coal, and the best practice, in so far as economy of binder is concerned, is to have a graduation of sizes so as to secure a maximum interlocking effect of particles. It may be pertinent to observe further that in briquetting a porous material, such as coke, it will take an excessive amount of binder. Therefore, in the car-

bonization of coal in which the alpha and beta constituents are more or less porous, one would expect considerable amounts of the coking constituents to be absorbed during the same plastic coking stage, and thus be rendered ineffective as a cement. Obviously, when it comes to making use of this test as a guide in mixing coals, or as a method of determining their suitability for coking, it is open to the objection that the heating conditions maintained do not even closely approximate those of a commercial coke-oven. This objection may, in fact, be raised against any laboratory scale coking carbonization test. The writer believes, however, that the agglutinating power as above defined may prove of considerable value if supplemented by some such test as the so-called Dutch oven coking test.

The Plastic State.

At a temperature somewhere between 350° and 450°C, coal being carbonized assumes a plastic or semi-plastic state. At this point the mass occupies minimum volume, and when the temperature rises there is excessive decomposition attended by swelling of the charge. At the point of completion of the coking or cementation the charge contracts again. The temperature ranges within which these phenomena take place, and the nature of the changes themselves depend, according to Illingworth, on the nature of the coal treated.

The heat treatment of the coal during the plastic state may well be expected to exert a strong influence on the coke. Thus, if the heating is too rapid, the bubbles of escaping vapors will distend the mass excessively, the bubble walls will be carbonized or "set," an da spongy coke will result.

Synthetic Coke a Possible Ideal

Having considered briefly the latest theories on the coking process, it may be well to look to the evidence accumulated in practice as demonstrating the practicability of synthesizing coke or modifying its properties as by mixing. A few examples will serve to illustrate what has been learned so far.

(This article has been abridged for want of space.)

Report of the Complete Gasification of Coal Section

Use of Oxygen to Make Producer Gas

W. R. Morris, Chairman
Seaboard By-Product Coke Co., Jersey City, N. J.

In order that there can be no misunderstanding, it is the purpose of this report to consider by Complete Gasification a process which gasifies coal so that no solid residue other than ash remains.

Two stage processes, such as a coke oven plant combined with a blue gas plant, are numerous and are not at all within the scope of this report. Neither have we considered producer gas plants, as they belong to the field of industrial fuels and can be reckoned only as auxiliaries to city gas manufacture. The primary object is to stay close to the ordinary interpretation of Complete Gasification as meaning a single-stage process. This brings us down to the manufacture of a gas ranging from 300 to possibly 390 B. t. u. value, which therefore, in its application to present day calorific standards can be no more than an adjunct to a city gas works.

Naturally the first question which arises is that of cost per therm, and it is from that angle of economic possibilities which we started out to present the status of Complete Gasification. At the first of the year, we felt that we woud be successful in being permitted to present the actual operating cost figures and thereby clarify the whole situation. As the months passed on stumbling block after another was encountered until today we regret to say that no such figures are available.

In the report last year and preceding years, descriptions were given of the various Complete Gasification processes and their theoretical possibilities were thoroughly discussed. A repetition of such would be burdensome and additions to processes already covered by committee reports have been so completely presented in the technical periodicals that they need no mention here.

So far as we can learn, no new processes have been placed in operation since last year's report.

The one process which seems to be pushing itself forward as a theoretical possibility, is that of producer gas made from pure or 90% oxygen. Numerous investigations of this process have been made and Mr. Willien at this time very ably presents for you a summary of the whole problem as it stands today. To those familiar with the simplicity of producer plant operation, it is most attractive to think of making in that manner a gas of 350 to 375 B. t. u. value. The first obstacle is that of cost of manufacture of the oxygen and the next is the doubt as to what would happen in the hot zone of a producer when pure oxygen instead of air is used.

In England, many complete gasification plants were built during the stringent war times. Cheapness and speed were absolutely necessary and reports indicate that such developments are rapidly on the wane; moreover, considerable doubt is expressed as to their future success. In France there exists a regulation which forbids more than 15% carbon monoxide in city gas and where mixing of gas is desirable to regulate B. t. u. value, several complete gasification plants have been built as auxiliary gas making apparatus because of the slightly lower carbon monoxide content in that gas than in blue gas.

The Proposed Process for Complete Gasification of Coal by the Use of Oxygen

L. J. Willien

The purpose of this paper is to present the gist of the data available on the proposed process of completely gasifying coal in a gas producer using 90% oxygen and steam continuously instead of air and steam intermittently. The figures given in connection with the operation to be expected from such a process were all derived from theoretical, or, in some cases, arbitrary consideration of the process.

Oil Gas

The following are some figures on oil gas made by the Dayton Process using an ordinary gas oil. The second column is based on using 90% oxygen instead of air.

	Air	90% Oxygen
Gallons of oil per M	5.3	12.0
Cu. ft. of oil gas per gallon	189	83.3
B.t.u., per cu. ft.	500	1210

Gas Analysis

	%	%
Carbon Dioxide	6.0	14.5
Unsaturated Hydrocarbons	15.9	38.4
Oxygen	.1	0.2
Carbon Monoxide	6.7	16.2
Hydrogen	2.3	5.6
Saturated Hydrocarbons	8.7	21.0
Nitrogen	60.3	4.1
	100.0	100.0

Assuming that the nitrogen in the gas shown in the first column comes from the air, the amount of 90% oxygen that will be required per M of oil gas is 174.5 cu. ft., or 32.9 cu. ft. per gallon of oil. In practice these amounts may be reduced, since there will not be the large amount of nitrogen to heat when using 90% oxygen, as there is when using air.

In order to produce 500 B.t.u. gas it would be necessary to enrich the coal gas from complete gasification (350 B.t.u.) with 17% of oil gas (1210 B.t.u.). For a 550 B.t.u. gas 23% oil gas would be required.

Control of Temperature

The ability to control the temperature of the hot zone in the oxygen producer is something which may prove to be a problem. During the war, at the Edgewood Arsenal, pure oxygen and carbon dioxide were used with coke in a water gas generator for the production of carbon monoxide. It was found that the reaction between the oxygen and the carbon of the coke took place first, developing an extremely hot zone, and that the reduction of the carbon dioxide occurred higher up in the fuel bed. The result was that the generator linings burned out very quickly. By the use of oxygen and carbon dioxide they succeeded in making 97% pure carbon monoxide. Although the reduction of carbon dioxide is an endothermic reaction, as well as the steam-carbon reaction, Professor Tour points out that at temperatures above 825°C (1500°F) steam rapidly becomes a more powerful oxidizing agent (is more easily reduced by carbon) than CO_2. Professor Tour further points out what at Edgewood it was necessary to maintain high concentration of the reaction products (CO) with very low concentration of the reacting gas (CO_2) which condition requires cumulatively increasing temperature, whereas, in the steam-carbon reaction, excess steam is not objectionable (in that it condenses out) and also a slightly increased CO_2 can be tolerated.

Cheap Oxygen Essential

The proposition of using oxygen in gas producers is dependent upon the ability to produce a 90% oxygen cheaply. Whether cheap oxygen in this case means $1.00 per M or 25 cents per M, it is difficult to say. The charge against the issuing gas would in each case be respectively 23 cents and 6 cents per M against which should be credited the total overhead and operating cost of the retort benches displaced as well as the decrease in overhead, operation and fuel consumption of the water gas machines superseded. There is no doubt that the cost of oxygen with present day methods is well under the first figure, and probably with the demands made by the gas industry should this process be developed, the last figure can be soon attained.

There is a total of but 3,000,000 cubic feet of oxygen produced per day at present in the country, all in very small installations compared with those the gas industry would need. Some of this is produced by the electrolytic process, but the majority of it is produced by the liquefaction process, which consists of liquefying gas and separating the oxygen from the nitrogen by fractional distillation. All of this oxygen is compressed into steel bottles, and 95% of it sold for cutting and welding. This oxygen runs 98.5% to 99.2% pure. The cost of producing it may be around $5 per M, which makes it use for gas making prohibitive.

In actual practice, the electrolytic process operates at 60-80% efficiency, but has a very high energy consumption, since it must decompose water to obtain its oxygen. The efficiency of the liquefaction processes run about 10%. The latter, therefore, affords a great margin in which to increase the efficiency and thereby reduce the cost. It must be remembered that the power charge may be less than half of the final cost of this oxygen, and increases in efficiency must not be at the expense of increased

overhead or operating charges. Reducing the purity of the oxygen reduces the cost of production in a much greater ratio than the reduction in purity, and this is the reason for considering the use of 90% oxygen; even 85% oxygen would be suitable. Professor Tour estimates the investment cost of an oxygen plant (using the Claude process and producing 90% oxygen in the capacities necessary for making gas) to be $1.00 per annual 1,000 cubic feet of 90% oxygen. The operating cost for such a plant he estimates as follows:

	Per M of 90% Oxygen
Power 20 k.w.h., at 1.0 cent	$0.20
Fixed charges of 20% of $1	.20
Labor, Materials, Incidentals	.05
	.45

The fixed charges include depreciation of 12½%, interest, 6%; taxes and insurance, 1½%. Professor Tour believes it fair to assume that the cost of 90% oxygen in large capacities will run under 50 cents per M with present day methods.

Complete Gasification of Coal By Oxygen

The complete gasification of coal by the use of oxygen is the most promising proposition that has been produced. If 90% oxygen can be manufactured at a cost of 50 cents per M or less, its use in the production of gas assumes a very interesting aspect and the gas industry should proceed to determine the feasibility of the process. A study of this problem would make a very interesting piece of research for some of the students taking fellowship courses supported by the different associations. As stated at the beginning of this paper, the process has never been tried, even on an experimental scale. Experiments should, therefore be made to determine:

(a) The amount and quality of gas that can be obtained per unit of coal, and

(b) The control of the temperature in the hot zone by the use of steam.

We all can remember the time when there were no flying machines or automobiles. The first flight of a flying machine lasted only twelve seconds, and averaged thirty miles an hour. A short time ago, a flying machine made a non-stop flight from New York to San Francisco in less than thirty hours. When the automobiles first came out, one dared not venture very far from home for fear he might not get back without being towed in. Today a car that will not travel a thousand miles or more without a breakdown is practically no car at all. It is not to be inferred from this that the gas industry is not progressing, but the idea is to bring out more forcibly President Munroe's remarks to the Technical Section in 1921.

I believe you will all agree that the ideal process for making gas is done in which the coal is treated in such a way that there will be only gas and ashes produced. The whole object of this paper is to start some of you thinking on this problem of the use of oxygen in the manufacture of gas, with the hope that one of you will solve it, and put it on a commercial basis.

(Parts of this article are omitted for want of space.)

Report of the Low Temperature Carbonization Section

Review of Progress in Low Temperature Carbonization

Charles V. McIntire, Chairman

THE past year has witnessed a marked revival of interest in the subject of low temperature carbonization. In the face of several well known failures in this field both the engineer and the layman contiue to feel that the pressing need of a suitable substitute for anthracite coal as a domestic fuel—a need which was brought in to high relief by the recent coal shortage, will be met by some process of low temperature carbonization. At any rate, the interest exists as is shown by continued references to the subject, not only by the technical press, but also by the daily news sheets, and the object of this paper is to set forth certain misconceptions held by many concerning the advantages they believe can be gained in the practice of the art; to point out some of the difficulties which lie before those who are undertaking to solve the problem; to give a brief outline of the work which is under way in the United States for the commercialization of Low Temperature Carbonization, and to touch upon some of the processes now before the public in England and Germany.

The distillation of coal at low temperature holds a certain fascination for the layman as well as for the chemist and the inventor, and this combined with the wide publicity given to the subject recently has been taken advantage of by promotors. It should be said here that there have been no developments along low temperature lines in this country or in England which would justify any assumption that the art has passed from the experimental into the commercial field. Distillation of cola at low temperatures has most certainly not been done on a commercial scale—by that is meant a money-making scale, yielding profits sufficient to carry the operating costs and the capital charges. It has been tried experimentally; on a semi-commercial scale and in one case in a full sized commercial plant, but it must be recognized that so far none of these attempts have been entirely satisfactory. The laboratory results remain the most satisfactory of the three phases in their promise of financial returns.

No process has yet made public any data which would justify the small investor in investing in it,

and the fact should be known that the development of any process is a matter only for the large capitalist, and then only after careful investigation by competent engineering authority.

Value of By-products Overestimated

One of the greatest misconceptions held with regard to Low Temperature Carbonization, even on the part of some technical men, is the assumption that the by-product yields from low temperature processes are so superior in value to those derived from high temperature processes that the revenue from them would immediately remove low temperature coke from all fear of competition with by-product coke.

It is a fact that the published matter relating to processes almost invariably gives optimistic accounts of the by-products to be obtained from the treatment of coal. In many cases the data so published are derived from small scale experiments in which temperature and other conditions do not parallel those which would obtain in large commercial apparatus, and are therefore meaningless. Such results are misleading, not only for the reason given but because they do not agree with one another.

It should be pointed out that as yet no large scale installation of low temperature carbonization retorts has operated for a sufficient period to establish a market for low temperature by-products. It is true that the Corbocoal plant at Clinchfield ran for nearly two years and sold quantities of tars and other products, but on the other hand, it must be remembered that these tars were not truly low temperature tars and also it may be said that their marketing was not as easy matter. That project plainly indicated, however, that while a market existed it could only be reached by the large producer who was willing to invest heavily in research work and who had a well-equipped selling organization.

Low Temperature Tar

When low temperature tar is made in large quantities and the fractions become available to the industrial arts, a market will undoubtedly arise to absorb them—most authorities agreeing that these tar oils are potentially more valuable than the secondary tars of the coke oven. This market is now undeveloped and therefore it is the writer's opinion that low temperature tar, if manufactured and sold as raw tar at the present time, would bring only a slightly higher price per gallon than the tar made in the modern by-product coke oven.

Continuing the comparison between low temperature products and those from the coke oven, it may be said that although the primary tars sell in the present market for prices only slightly greater than those of the coke oven, the total revenue from them is much greater, on account of the larger quantity obtained per ton of coal. This showing in favor of the low temperature process, however, is almost balanced, under present conditions, by the much larger quantity of salable gas produced by the coke oven Ammonia yields are also in favor of the coke oven. On the whole, with respect to by-products, the same rules which govern the economics of the modern by-product coke oven will also apply to the low temperature processes and those rules in part are:

1. The coke residue must be sold at a price considerably higher than the price of the raw coal from which it is made. This precludes those schemes which have as their object the treatment of coal for the removal of by-products and the use of the coke or semi-coke as boiler fuel. Coke cannot compete under present conditions with raw bituminous coal as fuel for power plants.

2. The installation must be of large capacity in order to spread out the overhead costs and the selling expenses. About 1000 tons daily capacity is the smallest size which should be considered under present conditions of high construction costs.

Properties of Low Temperature Coke

There is apt to be some misconception held regarding the inherent qualities of the residue or coke which is the main product of low temperature carbonization processes. It is sometimes assumed that because this coke usually contains more volatile matter than ordinary by-product oven coke it is therefore superior to it in every way as a domestic fuel. The fact is, there is a wide difference of opinion as to just what low temperature coke is, or will be when it is made commercially. The men who are backing the various processes do not agree with one another as to the nature of the product they are striving to produce. Some are trying to make, in a one stage process, a coke possessing all the excellent physical characteristcs of by-product coke plus a relatively high content of volatile matter, to give it free burning qualities; some wish to produce a semi-coke, high in volatiles, porous and soft in structure, similar to what is called Coalite; others have as their objective a small sized porous semi-coke, which they intend to prepare for the market by briquetting methods after the fashion of the Carbocoal Process. All are striving to make the ideal smokeless domestic fuel, an anthracite substitute. The coke oven operator thinks that he now has the fuel. Those who are working with low temperature carbonization do not agree with him, and the question will not be settled until a fuel is manufactured and sold commercially, over a long period of time, which proves by its performance and by the reception given it from the public that it is better than what we now have. It should be noted here that Carbocoal, the briquetted and redistilled product of the largest attempt at low temperature carbonization in the United States, was well received by the public during the short period of its production. It is not the purpose of this paper to define the ideal domestic fuel; that will be left for the public to decide when the various substitute fuels are put on the market, in competition with anthracite and with domestic coke, but we wish to set down the opinion that low temperature coke is not inherently superior to coke oven coke unless it is improved physically by briquetting or some other means.

(Various low temperature processes are described in the original report but want of space prohibits their reproduction here.)

Report of Builder Section

W. E. Stinwedell, Chairman

Cleveland, Ohio

The articles included in this section were as follows:

Carbonizing Apparatus of the Gas Machinery Co., W. E. Steinwedell, The Gas Machinery Co., Cleveland, Ohio.

Carbonizing Apparatus of the Improved Machinery Co., F. G. Curfman. The Improved Equipment Co., New York.

Description of the Koppers Co. Ovens, Harold J Rose, The Koppers Co., Pittsburgh, Pa.

Two Ton Horizontal Gas Oven Plant at Quincy, Ill., Vernon Baker Russell, Engineering Co., St. Louis, Mo.

Report of the U. G. I. Contracting Co., J. H. Taussig, Philadelphia, Pa.

Glover West Vertical Retorts, Continuous Type, E. G. Blackwell, West Gas Improvement Co. of America, Inc., New York City.

Relations With Customers

Report of 1923 Committee
Education of personnel--Credit and collection--Order taking and executing of high bills

A. L. Tossell, Chairman

The above report, which is published here in abstracted form, was delivered before the Wednesday meeting of the Accounting Section of the American Gas Association assembled in convention in Atlantic City.

INTRODUCTION

THE first requisite for membership in the American Gas Association is that the applicant must be associated with the gas industry, or a kindred industry. Therefore, when our association speaks for our great industry on a subject so fundamental as Relations with Customers, we must assume that, to our industry and the American Gas Association, two things are of vital importance:

1. To establish principles in fair dealing that none of our company members can refute.

2. An appreciation on the part of our company members that the good name of our industry as a whole is dependent on their individual and intelligent application of the principles so established.

Even more is required than acceptance and application by our members of reports submitted, and that is, not only an adherence to progressive policies that from time to time are presented, but an interest in initiating new thoughts and standards. When a proposal of policy or practice is made to the association through, or by its committees, they should be considered, not as single opinions, but as the results of composite thought presented after intensive and extensive investigation, and painstaking deliberation.

The report presented herewith offers for your consideration the result of investigations, observations, conclusions, and recommendations by the Committee on Relations with Customers. Your Committee was divided into the four sections named below, each having its own chairman, in order to facilitate the work of preparation. The completed report is given in the following sequence:

1. Education and Development of Personnel.
2. Credit and Collection Policies and Contractual Relations with Customers.
3. Co-ordination of Order Taking and Order Executing Departments.
4. High Bill Complaints.

A utility can only justify its existence and monopoly by a spirit of fairness, and a desire to serve.

The lack of understanding on the part of our customers, is one of the greatest handicaps a public utility company has to overcome in the best development of its service.

A superhuman element does not enter into the management of a public utility; there is nothing strange or mysterious about it. The ordinary citizen understands something about our business. He has well developed ideas on how certain things should be done, how customers should be approached, and routine matters handled. These ideas are usually in keeping with the ideas and policy of the company. In fact, they are often the very thoughts of the management, and express policies which the company has been striving religiously for years to carry out.

Easy to Find Common Ground

Thus the management and its customers are as one, with the same desires, the same ideas of service, making it an easy task to find a common ground on which to stand and serve each other. Yet, there is a wide gulf between the utility management and its customers because of a lack of understanding They have the same language, but as each has never heard the other's voice, there is a lack of understanding between them. They have the same thoughts

and desires, but have never expressed them, each expecting the other to know what was in each mind.

Two forces, the same in purpose, are running parallel. It is the big job of the utility management to connect these two channels of thought, to make the contact and develop the power.

There is little satisfaction in a policy of courteous service to customers if they continue to see only distorted reflections. It is not enough for the utilities to be moved by a spirit of fairness. They must put it across to their customers and getting it to the public is the important job.

Every employee should feel and realize his importance and should be representative of all that the company stands for, so far as its customers are concerned. Mistakes will happen in all departments, and the effect of such errors on our customers must be eradicated, and their good-will maintained. This is the important work of any utility, and by its success the company's prosperity and standing is measured.

Taking Care of Complaints

Two principal methods are employed in taking care of customers' complaints; viz., by correspondence, and by personal contact. With a large volume of business, it is obvious that a great many inquiries must be cared for by letters, although it is more satisfactory for a customer to sit down at a desk and talk the matter over with an intelligent agent of the company. But the company can go further and send its agents to the customers. A person who complains of a condition, believes that he is justified; his pride or his pocketbook has been affected, and he feels that he has a real grievance; but unless a letter is favorable and contains the things he wants to hear, it will tend to aggravate the case and perhaps make conditions worse.

A personal call on a dissatisfied customer, by a representative of the management, has an important and desirable effect. The customer is impressed with the friendly attitude of the representative of the company, whom he finds a pleasant, agreeable gentleman, ready to explain intelligently all the angles of the complaint, and who shows a willingness to make any reasonable concession, or comply with any request, not as an evidence of weakness, but in a spirit of fairness, with a desire to be of real service to the customer.

The missionary work of making converts for the company in the home or office by personal calls may appear expensive, but any expense will be more than overcome by the improved public relations. Customers so approached will not only become friendly, but a matter disposed of in this manner will stay settled. To discuss a subject, man to man, face to face, is a rare opportunity of incalculable value, which invariably results in a better understanding.

Training, Education and Development of Personnel

Responsibility for the morale of an organization is the obligation of the management; it can ill afford to lose contact with the people who are doing the job. The human factor must be considered. There should be built up between the executives and the general forces, a line of intermediate supervision that will interpret correctly the policy of the management and pass it on to their associates.

In the past, we have distinct recollections of "drivers." In welding the bonds that should exist to be lightly worn by both the management and employees, nothing can be accomplished by "driving." Leaders, not "drivers" will bring about your objective. Leaders that will develop loyalty and willing workers, instead of dissenters and sluggards.

Recently, more attention is paid to people coming into our industry. Special consideration is given to the selection of men and women of the highest type and to placing them in positions for which they are best adapted. First interviews are conducted by persons competent to sell the opportunities in the gas business to the prospective employee. Particular care is observed in the employment of boys and young men who, some day, will fill positions of high responsibility.

It has become a part of management policy to look after the health, safety, and welfare of employees. Arrangements are made for sick and death benefits, insurance, savings, and the purchase of food, clothing, coal, coke, and so on at less than retail prices.

It is a fallacy to assume that education ends when the student completes his high school or college course. Education, in some form, is going on continually. In our own industry, various methods of instruction are in effect. Physical and mental training are essential. Salesmen, correspondents, order clerks, shop men and others who are trained only in the fundamentals of their own particular jobs, without regard to their relations with customers, can do much to injure a company's reputation.

The employee is the best source of information on the best methods of doing his job, provided he works intelligently. While on his regular job he knows exactly what should be done, too often we find that in his relations with customers he doesn't know how to put the theory into practice. He lacks tact, finesse. So he must get his "service selling" education to enable him to produce the desired point of contact.

Group instruction by executives is beneficial. Officers narrate the company's history, how it is financed, and its general policies. Superintendents give talks to groups made up of men and women from all departments, on such subjects as, "How gas is made and distributed," "Construction and operation of the meter," "Accounting," "Disposing of complaints," "Collections and credits," "Letter writing," "Salesmanship."

Employees are taken in groups through the manufacturing plants. Specially selected groups visit the plants of industrial companies where gas burning appliances have been installed. Lecture courses for salesmen are being conducted successfully in the subjects that interest the selling organization.

Weekly departmental meetings are of value. If it is not expedient for all employees to attend, the supervisors should be present, and they should impart any important developments to the members of their respective divisions.

Some method of interdepartmental instruction is essential in every company. All employees should be competent to talk intelligently about the gas business, not only with customers in office hours, but in social intercourse with their friends and acquaintances.

Contracts, Credits, Collections and Credit Relations With Customers

There should be as little delay as possible when the customer is asked to sign a contract. Forms can be made easy to read and easy to understand. Many companies accept applications to turn on gas and make their credit investigations later. This policy serves more than one purpose. It saves time for the customer and affords the company an opportunity to ascertain the rate at which gas is being consumed in the event that a deposit is required.

The entire structure of business is practically based on credit. Business transactions between a customer and a gas company begin with credit information. It is, of course, desirable that the first relations with a customer shall be pleasant, and still withal the company must be protected from loss. The credit man can assist in building up good-will by being courteous and helpful to customers and by being as lenient in passing on credit matters as is consistent with good practice.

The tendency is toward a more liberal credit system. Fewer deposits are being required and they are refunded at an earlier date, provided bills have been paid promptly. Closer attention is given to the construction and tone of credit correspondence. Satisfactory credit terms must be arranged with merchandise customers in order to meet competition

In most of the organizations the credit and collection departments are united because of the necessity for an efficient linking of the functions of the two departments.

To collect the overdue accounts, but still not offend customers, is the problem that makes the work of the collection man difficult. The credit man who is too strict loses good-will; just so does the collection man who is too drastic. At the same time the other side of the problem must be considered. Customers soon come to know which concern is indifferent and which concern will insist that its bills be met promptly. Exercising leniency to those who are worthy is the problem which is yours to solve. We admit we have not discovered a plan that will stand the test everywhere.

Co-ordination of Order Taking and Order Executing Departments

Our customers have come to recognize the telephone as a reliable means of communication; therefore, a large number of orders are received in this manner. Customers who telephone their orders should be treated with the utmost courtesy, for first impressions count for much in establishing friendly relations.

Our order clerks at the counter should be neat in appearance to begin with. They should be courteous, conciliatory, of pleasing personality, and ready and willing to serve. A good telephone order clerk will reflect these qualities in the tone of his voice. Order clerks must be well informed in all branches of the company's business; they should give information, but never enter into arguments or disputes with customers. Explanations should be made concisely, but clearly. Half an understanding is more harmful than no understanding. If the customer does not understand he can not be fair. And because of vanity perhaps he will not always tell you that he does not understand. Usually he has a little pride about confessing what may seem to be slowness or stupidity. These clerks should be high grade employees, as they are really service salesmen of the company.

Construction work arouses the curiosity of the average person. The foreman in charge should answer questions cheerfully. Fitters, who take time to explain the reason for changing meters periodically will inspire confidence. Inspectors, who make investigations and adjust appliances when complaints are made about increased bills, will demonstrate the company's sincerity of purpose if they are careful to explain how gas can be used economically. Courteous, conciliatory, sincere attitudes are the seeds that will produce good-will.

In the taking of orders, no agreement should be made which cannot be fulfilled; every promise made should always be kept, emergencies, of course, excepted. It is not what we advertise and say we do that counts so much; it is the performance of prompt and efficient service that makes friends. The fulfillment of the order is the real test of the quality of service given.

Complaints

The principal point of contact between a company and its customers is the Bill Adjuster, or the High Bill Complaint Clerk. Men who are indifferent, forgetful, morose, and self-centered should be kept in the background. Those who are cheerful, alert and considerate will be more likely to give customers striking examples of the spirit of courtesy, fair dealing, and service, that underlie the policy of the company.

A High Bill Complaint Clerk should be a service salesman of good judgment and perfect self-control. He should be master of himself at all times. The customer may have reason for his complaint, or his grievance may be purely an imaginary one. He may make a demand for adjustment, utterly unreasonable. He may be at fault—not the company. The problem in any case is to re-establish his confidence in the company and win his good-will. The adjuster must make certain that his own statements have positive virtues that will establish business friendships. It is not enough that they simply have the purely negative virtue of silencing the complainant. If you maintain toward the complainant the positive virtues of patience, calmness, and courtesy, the "unreasonable customer" will, as a rule, assume a like attitude.

Letter writing is of greater importance in the High Complaint Department than in any other. Since adjustment letters have to do with facts that in themselves are annoying and disagreeable, it is essential that such letters carry the proper tone. The

customer should not be unduly reminded and impressed with the disagreeable features of the complaint. It is good practice to emphasize what you can do in the way of adjustment, rather than what you cannot. A courteous disposition of all the details, no matter how angry the customer may be, no matter whether his request can be granted or not, will do much toward establishing friendly relations.

The responsibility of public utility companies to state commissions for service rendered to customers, in some cities, had the effect of reducing the number of complaints. That is not to say that proper service was not given previous to Commission control, but the very fact that customers know they have the privilege of appeal to the Commission, as referee in disputes, seems to have created a feling of greater confidence that the utility companies are operating fairly and squarely.

Recommendations and Conclusions

Specific recommendations and routines designed to improve relations with customers will be found in the sub-committee reports appended. In addition, we would recommend that closer attention be paid to the construction and tone of form letters and dictated letters.

Some companies send letters of welcome and goodwill, together with pamphlets, to new customers. These letters are followed up in about ten days with sales letters from the New Business Department.

Year after year, at our state conventions, and also at the national conventions, we make reports and read papers on the ways and means for handling complaints, but little is said about forestalling them.

It is suggested that at the next convention of this Association a committee devote its efforts to the subject of errors and their prevention.

Progress Has Been Made

The Committee believes that the gas industry, as a whole, is to be congratulated on the progress that has been made in establishing better relations with customers. Within the last decade there has come about, partly through the ownership of stock by public utility customers, a change in the attitude of the average person toward big business in general and toward such indispensable service as the public utilities provide. Gas companies, all over the country, who have been continually keeping the service idea before the public, are deserving of a full measure of credit for the gradual improvement in relations with customers.

It is not to be assumed that the millenium is here and that complaint and criticism have ceased. But our customers are becoming more discriminating, and consequently complaints are less wholesale and less unjust.

Relations with customers will, like everything else in our industry, improve in proportion to the attention given the subject. We have no ill in the gas business that cannot be cured by right thinking and hard work. The present is packed with possibilities. Safety, self-preservation, and progress lie in a coherent program for tomorrow. If the program includes careful guarding of every point of contact with customers, the reward will be a rich harvest of good-will. Good-will is inseparably linked with progress.

Co-Ordination of Order Taking and Order Executing Departments

Order-taking—Meter application—Merchandising

O. F. Potter, Chairman
Public Service Gas Company, Newark, N. J.

IN making up this report the Committee realized the great responsibility and important part which the department, or departments, concerned in order taking and order executing take in giving the customer his first impression of doing business with the gas company. To him the individual and the department with which he is dealing represent the company, and frequently these are the only parts of the company with which he comes in real intimate contact.

It will be noted that while recommendations may be made concerning departmental lines, it is to be borne in mind that local conditions should always be permitted to modify the application of the presented plan. The first thought in the mind of the committee is to outline the work with a view to making the physical conditions of an ideal office, in so far as the lay-out is concerned, as accessible as possible from the customer's standpoint. He should be cared for with the least possible red tape and with such prompt and courteous attention that there will be no doubt in his mind as to the quality of service the company desires to give.

The creation of the proper contact should be the direction of the utilities' endeavor. Office lay-outs, dispatching, and the physical performance of the order are essential adjuncts to service, for they have a direct bearing on the satisfaction of the customer. Service in its broader sense, with confidence as its ultimate goal, means establishing the most important factor in the utility's relations with its customer—the personal element.

The impossibility of direct contact with the customer by the management of today because of the growth of our business necessitates the delegation to the rank and file of many duties pertaining to customer relations. This results in the employee becoming the main point of contact with the customer. To him the employee is the company, and from the employee's attitude and conduct the customer receives his impressions, draws his conclusions, and forms his opinions of the company. It is in this contact that the extent of confidence and good-will for the company is determined by the degree of human personal interest exhibited by the employee in

the customer's order or complaint, and in the sympathetic understanding of the customers' needs, which can only be developed in fullest measure through a real desire to serve.

In order to conform to the nomenclature of the Committee and to make definite references to the divisions or departmental lines, we shall take up the Order Taking Department first.

Order Taking Department

Accessibility to the personnel of this department is the first consideration. The ground floor is the logical location. The lay-out of such a department should consist of a counter, preferably straight, and along one side of the office, but so situated that the customer can see it when entering the office. Signs should be displayed over the counter as an aid to the customer in locating it. The counter should be placed so as to allow sufficient room behind it for clerks both at the counter and at desks, with telephones, so placed that the clerks can at all times face the customer. Filing spaces should be provided under the counter. The desks and files should be systematically arranged in order that a good appearance may be made and also to avoid any impression of confusion on customer's part.

(Details are given of method and principles of order taking in the original report.—Editor.)

At this point it may be well to point out the importance of using tact in declining to do work at the request of the customer. This phase of our business requires delicate handling and a decision from the manager of the department should be secured, in order that the enforcement of certain rules may not cost more in good-will than the expenses involved in doing the work requested.

Meter Application Department

The Meter Application Department, as its name implies, takes care of all work (except complaints) in connection with the service through the meters. The customer applies at the counter in this department for service, or seeks transfer of service from one address to another and signs the necessary contract.

Consideration may be given to the elimination of the contract on all transfers.

It is recommended that meters be shut off and not removed where vacancy of apartment or house is deemed temporary, and in instances where an application is received for gas service to be supplied to premises where the meter is turned off this should be handled by men operating out of the Commercial Office. The thought behind this is that the service is more readily available for the customer if the meter is not removed.

In the event of a request for service coming by telephone the order should be accepted without paying any attention to the matter of signing a contract or question of credit. After service has been given, an application or contract should be mailed to the customer with the request for signature. In case it is not returned promptly, it should be followed up by an outside man.

The Meter Application Department receives each day from the Gas Shop, a report of the status of orders dispatched to them so that, in case of inquiry by the applicant for service, the Meter Application Department is in a position to give the information without causing delay by telephoning the shop.

Inquiry and Complaint Department

The Inquiry and Complaint Department should be the clearing house for the customer for all trouble and complaints in his relations with the company. Complaints of every nature are received here. Any question of billing and allowance is handled by this department. Whenever possible the case is adjusted and disposed of by the employee receiving the customer and while the customer is present. Or, if the case calls for investigation, it is turned over to a specially trained outside man. As already referred to, a telephone table board is maintained in this department where all telephone complaints and inquiry calls are handled.

New Business or Merchandise Department

It is desirable for purposes of accessibility and show room space, to display appliances in a manner and in a location where they will be readily accessible and can be seen by the customer entering the office of the gas company. The order counter can indicate by signs that orders will be received at that point for appliances or for their installation.

(Details of executing an order are given in the original article.—Editor.)

Complaint Work

Investigation and time study made of this work has disclosed the fact that a man can cover twelve complaints a day. Each man is given from thrteen to fourteen orders a day to insure keeping him busy. His work is collected from him at his home each night which obviates the necessity of his coming to the shop and permits him to stay in the field up to the last minute. The complaint men carry with them small supplies such as mantles, cylinders, tips, burners, springs, etc., which they sell to customers when necessity arises in making adjustments that require repairs. This is all done on a credit basis.

The selection of the right personnel cannot be too strongly stressed in connection with the Contract or Order Department work and the Order Executing Department work. Regardless of the ideal lay-out of the office and the simplicity of the system, unless the employee realizes and appreciates the value to the Company of creating the proper impression upon the customer, the efforts of the utility company to build up good-will on the part of the customer will go for naught.

(In the original paper there are included many illustrations showing various forms used and considerable detailed information explaining their use. This has been eliminated because of lack of space.—Editor.)